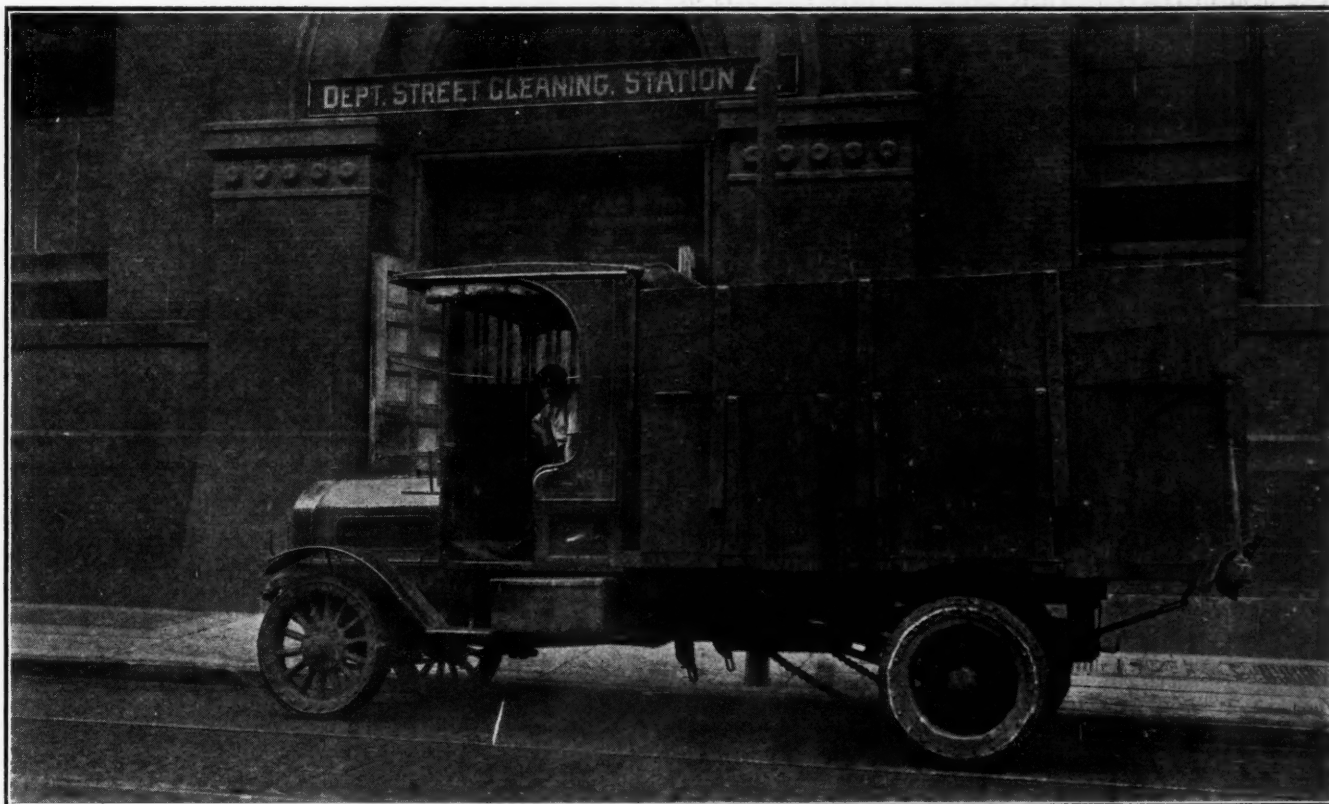


# Municipal Journal

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AUTOMOBILE TRUCK FOR CARRYING GARBAGE.

## STREET CLEANING AND REFUSE COLLECTION IN BALTIMORE

Machine Cleaning Done at Night—Business District Patrolled—Ten Street Cleaning and Four Refuse Collection Districts—Motor Truck and Scows for Removing Garbage—Quantities and Unit Costs.

The street cleaning department of Baltimore is an efficient and well-organized body. At a remarkably low cost it cleans the streets, collects garbage, ashes and waste, cleans the catch basins and takes entire charge of the public markets. W. H. Larkin and J. T. Doonan are commissioner and deputy, respectively, but much of the work falls on J. T. O'Connor and J. H. Callahan, who act as general superintendents of the garbage and street cleaning divisions.

In order to facilitate the work of keeping the streets clean, the entire street area is divided into ten districts, each having its own force of men. The first, second, third, fourth and seventh districts, having a combined area of about 3,900,000 square yards, are cleaned about once a week. The fifth district comprises more of the suburban streets and its 1,060,000 square yards are cleaned only once in two weeks. The sixth district is

slightly smaller than the fourth and is swept twice a week, excepting about one-third of it, which receives an additional night cleaning as district 9. District 6½, which has an area of 215,000 square yards in the center of the city, is cleaned six times a week. District 8 is about 300,000 square yards, and is cleaned daily by a traffic squad.

Either hand or machine cleaning is used, depending on the street. Baltimore still has some cobble pavements, and these, rough stone pavements and the combined stone and wood block pavements are very hard to clean by machine. In hand cleaning both gang and block systems are in use. In the busy thoroughfares, each man is assigned a certain area to keep clean. These men wear white uniforms.

During the summer, practically all squeegeeing, sprinkling and machine sweeping are done at night. The dirt

is swept into long rows by machine, into piles by a following force of hand sweepers, and then is loaded into carts by hand.

Streets are washed about once a week. Public markets, however, are hosed out every night. (It is part of the department's work to keep the markets clean.)

In cleaning catch basins, a hand-operated winch is used to hoist the buckets into the wagons. However, many of the manholes are so small that full advantage cannot be taken of this device.

The department now owns thirteen Kindling squeegee machines, twelve of them being in constant use and one held in reserve. There are also thirty sweepers of Studebaker and other makes, eight Studebaker sprinklers and 128 Studebaker carts. The list of men includes 292 sweepers and scrapers, 128 drivers, 33 sewer men, 28 machine drivers and 31 stablemen. In 1912 the department swept by machine 312,725,000 square yards of streets at a cost of \$660,622.83. The squeegee machines, which covered the routes on an average twice a week, cleaned 29,810,000 square yards.

Total number of square yards of streets swept by machine from Jan. 1 to Dec. 31, 1913:

|                | Square yds. | Cost per month. | Cost per 1,000 sq. yds. for one sweeping. |
|----------------|-------------|-----------------|---|
| January .....  | 15,000,000  | \$2,145.59      | \$0.143                                   |
| February ..... | 9,800,000   | 2,165.46        | .211                                      |
| March .....    | 22,000,000  | 1,877.05        | .085                                      |
| April .....    | 26,246,463  | 2,861.11        | .109                                      |
| May .....      | 32,888,827  | 4,618.46        | .140                                      |
| June .....     | 31,825,032  | 4,297.19        | .132                                      |
| July .....     | 30,442,166  | 5,085.81        | .167                                      |
| August .....   | 29,899,585  | 4,474.05        | .149                                      |
| September ...  | 32,615,963  | 4,653.29        | .143                                      |
| October .....  | 29,371,800  | 9,457.51        | .322                                      |
| November ...   | 25,419,019  | 14,172.49       | .558                                      |
| December ...   | 27,307,647  | 4,814.82        | .162                                      |

For convenience in the removal of ashes, garbage and rubbish, the city is divided into four sanitary districts. These are known as the Central, Western, Northern and Southern. Garbage collected in all these districts is conveyed in one-horse carts to the Western stable. Here, by means of a steel chute, the garbage is dumped into an automobile truck, which carries it to a scow at Back Basin, five miles away.

This truck, which is a Mack  $7\frac{1}{2}$ -ton truck, is believed to be the first to be used on this sort of work by any city. It has been in use for nearly a year and, in the opinion of the departmental heads, has already paid for itself. It costs about five dollars a day to run, and in addition to carrying 24 tons of garbage a day a distance five miles, is used every Saturday night at the markets, where it takes the place of twelve street trucks for half a day each.

Garbage is placed in closed cans provided for the purpose by the department. The cans are gathered by the collector, who makes the rounds as early as possible in

the morning. One-horse carts are used in most cases on account of the great number of alleys and small cross streets. Canvas covers are provided for the carts. Householders are required to keep garbage separated from ashes and rubbish, although they are not as observant of this rule as is desirable.

The garbage is either hauled to the central station and from there carried by auto truck to the scows, or is carried to them directly from the place of collection. The scows are operated by the Southern Products Co., which owns and runs the reduction plant at Bodkin Creek under a contract expiring Dec. 31, 1917. At that time the plant will pass into the hands of the city.

During 1913, there was a total of 180,531 cubic yards of garbage removed and carried away on the scows. The amount of ashes and rubbish hauled by the city to meadows and other dumping places was 464,720 yards. One hundred and ninety-seven carts and two hundred and twenty-eight men did the work, the total cost being \$221,114.77. The items were as follows:

#### Expenditures:

|                                  |              |
|----------------------------------|--------------|
| Pay Rolls.....                   | \$150,029.88 |
| Feed .....                       | 36,866.63    |
| Shoeing .....                    | 4,167.62     |
| Stable rent .....                | 1,350.00     |
| Veterinary .....                 | 552.48       |
| Sundries .....                   | 2,028.37     |
| Wagon and cart repairs.....      | 4,949.01     |
| New carts.....                   | 5,043.00     |
| Horses and mules.....            | 15,025.00    |
| Harness .....                    | 1,102.78     |
| Total .....                      | \$221,114.77 |
| Received for sale of refuse..... | 6,398.97     |

In addition to the above described work, the department has 180 cans set about the city at different places to receive rubbish. Department carts call at these stands in the evening and take away all that has collected.

#### Apparatus and Force Employed.

|  |     |
|--|-----|
| Total number of garbage carts and men..... | 197 |
| Total number of street carts and men.....  | 128 |
| Total number of sweepers and scrapers..... | 292 |
| Total number of sewer men .....            | 33  |
| Total number of machine drivers.....       | 28  |
| Total number of stablemen, etc.....        | 31  |
| Total number of men.....                   | 709 |
| Garbage carts .....                        | 197 |
| Street Carts .....                         | 128 |
| Sweepers .....                             | 30  |
| Squeegees .....                            | 13  |
| Sprinklers .....                           | 8   |
| Auto trucks .....                          | 1   |
| Horses and mules .....                     | 344 |

Horses and mules are used by both the sanitary and the street cleaning divisions, but no separate records of each division are kept. At the beginning of the year there were 344 draft animals owned by the department.

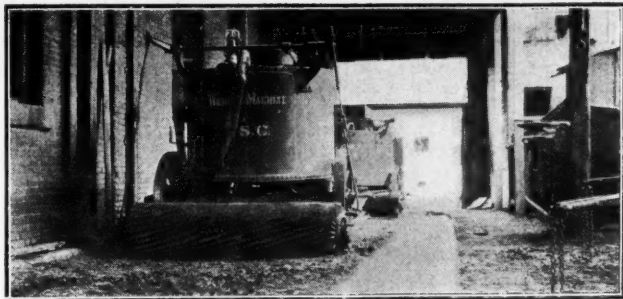
The department keeps a repair shop in which garbage and street cleaning equipment is repaired. During slack

#### Street Cleaning Work Done During 1913, and Unit Costs.

| District | Area Sq. Yds. | Total Collections in Tons | Cost Collecting and Removing per 1,000 Sq. Yds. | Cost Sprinkling and Sweeping per 1,000 Sq. Yds. | Total Cost for Whole District | Total Cost per 1,000 Sq. Yds. | Cost Per Ton of Collected Material | Collection in Tons per 1,000 Sq. Yds. |
|----------|---------------|---------------------------|---|---|-------------------------------|-------------------------------|------------------------------------|---------------------------------------|
| 1.....   | 753,000       | 24,417                    | \$49.51   | \$9.03  | \$44,858.40                   | \$59.57                       | \$1.84                             | 32.43                                 |
| 2.....   | 657,000       | 23,839                    | 60.55   | 9.93  | 47,079.75                     | 73.18                         | 1.98                               | 36.29                                 |
| 3.....   | 587,700       | 16,000                    | 66.66   | 9.08  | 45,236.97                     | 76.93                         | 2.83                               | 27.28                                 |
| 4.....   | 900,000       | 17,934                    | 36.49   | 7.20  | 40,097.78                     | 44.56                         | 2.24                               | 19.93                                 |
| 5.....   | 1,060,000     | 25,005                    | 35.79   | 6.11  | 45,199.66                     | 42.64                         | 1.81                               | 23.59                                 |
| 6.....   | 844,000       | 16,734                    | 36.64   | 7.79  | 38,320.28                     | 45.40                         | 2.29                               | 19.95                                 |
| 6½.....  | 216,000       | 25,156                    | 127.83  | 30.00   | 34,734.28                     | 160.81                        | 1.38                               | 116.46                                |
| 7.....   | 1,000,000     | 21,272                    | 32.36   | 6.52  | 39,656.78                     | 39.66                         | 1.87                               | 21.27                                 |
| 8.....   | 300,000       | 2,456                     | 58.08   | 18.73   | 23,736.49                     | 79.12                         | 9.66                               | 8.19                                  |
| 9.....   | 550,000       | 6,405                     | 23.76   | 8.53  | 18,338.49                     | 33.34                         | 2.87                               | 11.65                                 |

The above is for the year 1913 and shows all results. The table shows the cost of caring for area for whole year.





SQUEEGEE MACHINES IN SHED.

times, new equipment is built up from parts on hand. There is also a blacksmith shop at each division stable, where horses are shod and minor repairs effected.



SCOWS USED FOR REMOVING GARBAGE.

The summary of work for the year 1913 is as follows:

|   |              |
|---|--------------|
| Total number cubic yards garbage collected and removed .....                      | 180,531      |
| Total number cubic yards of ashes and refuse collected and removed.....           | 464,720      |
| Total number cubic yards of street dirt, snow and sand collected and removed..... | 268,828      |
| Total number cubic yards removed from sewers and inlets .....                     | 27,449       |
| Total removed .....   | 941,528      |
| Total cost of collecting garbage and ashes.....                                   | \$221,114.77 |
| Total cost of removing garbage .....  | 66,500.00    |
| Total cost of collecting and removing street dirt, sand, snow, etc.,.....         | 313,197.63   |
| Total cost of sweeping and sprinkling by machines .....                           | 60,622.83    |
| Total amount for repairs and tools.....   | 6,490.40     |
| Total amount for incidentals.....   | 1,646.64     |
| Total amount for salaries.....  | 26,549.37    |
| Total amount for cleaning sewers and inlets...                                    | 35,171.56    |
| Total amount for removal of street dirt by scows                                  | 29,927.44    |
| Total amount destruction of weeds.....  | 934.00       |
| Total for 1913.....   | \$762,154.64 |

#### EMPORIA GARBAGE DISPOSAL.

At the convention of the League of Kansas Municipalities, mayor Edgar Fessenden of Emporia stated that the commissioners of that city had built an incinerating plant which was put into service on the 31st of October, 1912, and had been in constant use every working day since then. This plant cost \$3,300; the team, wagon and harness used for collection cost \$452.90, making a total outlay of \$3,752.90. The population of Emporia is about 12,000. During the first eleven months of operation, the amount of garbage collected amounted to 1,377 loads, in addition to which there were burned in the plant 46 horses, 8 cattle, 12 hogs and 157 dogs. Any water in the garbage passes through the furnace into chambers beneath, while the solid matter is incinerated. The operating expenses comprised \$370.40 for coal, \$510 for salary of superintendent, \$590 for garbage collector, \$52.15 for repair work on the plant, \$122.70 for feed for

the team, and \$21 for horse shoeing; making a total running expense of \$1,765.99. Mr. Fessenden believes that a similar plant for a town as small as 2,000 inhabitants could be built and operated economically.

Tin cans are collected by the garbage wagon, except during two or three months of extreme hot weather. Citizens are required to place cans for collection in a receptacle separate from the garbage. Both garbage and cans are collected at least once a week, and in hot summer months twice a week.

In this connection reference was made by members from several Kansas cities to the state fire marshal's ruling concerning rubbish, which was as follows: "The trash can law is comprehensive enough to include among its violators every one who starts a bonfire to burn weeds and trash instead of using a trash can. A fine not exceeding \$100 is imposed for the violation of this state law, applying only, however, to cities of the first and second class. All litter and trash of every kind, leaves included, should be hauled beyond the city limits or burned in a trash can. This is intended to eliminate bonfires in streets and alleys that are so dangerous to surrounding property and constitute such a pernicious fire hazard. In some towns the business men or householders in a block expect to unite in constructing cement receptacles at a point convenient to all in the block. In them, each day's accumulation of trash may be burned; and in this way, the community trash can will prove as advantageous as the individual one and much more economical." The law, it was stated, requires that each property owner or occupant shall provide a receptacle of either stone, cement, brick or iron, and that the refuse shall be collected in this receptacle and either burned or buried.

#### NEWPORT NEWS FIRE DEPARTMENT.

Although not a large city as to population, Newport News, Virginia, covers a large area and has, as well, several miles of waterfront. To adequately guard this large area, the fire department must be both well equipped and up to date. In order to give better protection, and at the same time effect economy, Newport News has decided to motorize the entire fire department.

At present, the department owns one 48-horsepower American-La France combination chemical, hose wagon and tractor. This machine pulls an engine and makes good speed even on steep grades. Other equipment owned by the department includes three engines, one aerial ladder truck and two combinations. The motor combination replaced five horses and ten are now in the service. There are three engine houses.

The personnel of the department includes, in addition to chief W. J. Stow and electrician F. O. Goodwin, sixteen paid firemen and four companies and 150 volunteer firemen. The paid firemen are on duty all the time and, in actual work, are assisted by the volunteers.

To guard the long and valuable waterfront, with its miles of piers and docks, the Chesapeake and Ohio R. R. Co. maintains two boats, which, while not primarily intended for fire fighters, are equipped with hose and pumps. A similar boat is in the service of the Newport News Shipbuilding Co. These boats answer all calls along the waterfront and are a valuable aid to the department.

Present plans include the complete motorization of the department as soon as possible. Funds are now on hand and bids will be asked shortly on a chief's car and on three combination trucks of the same style as the one already in the department. Since these can be used as tractors in addition to their ordinary work, their purchase will entirely eliminate horses from the department. The

officials expect a large saving in upkeep expenses as soon as the new equipment is put in service.

The truck already in use has shown a decided saving in cost over the upkeep of horses, but it has not been in service long enough to give any reliable figures. Its use has, in addition to the lowering of cost, increased the efficiency of the department.

A Gamewell fire alarm system has just been installed under the direction of electrician Goodwin. Thirty-seven boxes are now in service and more will be connected shortly.

The department has a repair shop in connection with each engine house. All repairs are made by these shops and many pieces of minor equipment have been designed and constructed by the men in the shops.

Last year the total cost of the department fell under \$25,000. This year it will probably be less, due to the use of motor apparatus, since each new piece takes the place of five horses. The fire loss last year was \$84,000, but \$79,000 of this loss was incurred in three large fires. There were 167 alarms turned in last year and 82 for the first six months of the present year.

## SPRINGFIELD STREET MAINTENANCE

Limiting the Tearing Up of Pavements—Procedure Enforced in Making Openings—Deposits Required—Back-filling and Paving Done by City Employees.

By GEORGE L. RINKLIFF.

During the first six months of commission-manager government in the city of Springfield, Ohio, much attention has been given to the problem of street maintenance, and a policy has been mapped out and for the larger part put into operation, which is expected to result in better streets for Springfield and at the same time reduce materially the cost of maintenance.

The streets of the city are for the first time in years, if not for the first time in the history of the municipality, in charge of a civil engineer. Upon assuming the office of city manager at the first of the present year, Charles E. Ashburner devoted considerable attention to the reorganization of the service department. By virtue of his office, he exercises, among other official powers, those formerly vested in the service director, who was dispensed with. The office of superintendent of streets also was abolished and its duties combined with those of the chief engineer, who had previously been in charge of construction work only. Three foremen, one of street cleaning, another of street repairing and another of sewer maintenance, were selected to complete the organization.

The new plan of organization made a considerable reduction in the annual payroll, concentrated responsibility and authority, and placed the streets under the control of an engineer. A system of progress reports was installed, whereby the foremen are able to furnish, at the conclusion of each day's operations, a statement of the amount of work done, the number of men employed and the actual cost of operation. Copies of these reports are filed daily in the offices of both the chief engineer and the city manager, and are found of great value in enabling the administrative department to determine how nearly a hundred cents' worth of value has been secured for each dollar expended on streets and sewers.

### STREET CONSTRUCTION.

Following the work of reorganization, attention was given to the details of the system of street maintenance, and of the causes of deterioration in improved streets. Acting upon the conviction that the first step toward se-

curing first class streets is to build them so, city manager Ashburner issued an order to the inspectors on construction work to see that the specifications in all contracts are followed absolutely. Inspectors on sewer construction work were directed to permit no more than one square of any street to be opened at any time, and to require all sewer contractors to tamp trenches, and level the street as fast as the backfilling is completed. Sewer contractors were notified that estimates would be paid only upon such portions of their jobs as were properly resurfaced.

These measures have been found quite effective in restoring the surfaces of gravel streets. The city commission and the city manager adopted the policy of refusing to pave or macadamize any streets until all mains and sewers, together with the necessary house services, were installed. This makes it necessary to open paved and macadamized streets for repairs only, except upon such streets as the neglect of previous years had permitted to be paved without proper attention being given to underground work.

The specifications for the sewer work call for the installation of services to the curb line. Before a street is permanently surfaced, the waterworks department is required to furnish the city manager a plan showing the lots abutting the street with and without water services, and the superintendent of the department is required to install service connections wherever they are missing within a specified time. The Springfield Gas Company is also required to install its mains, with service connections to the curb lines, before paving operations are commenced.

In the "resolution of necessity," which is the first legislative step toward street improvements, all owners of property bounding and abutting upon streets for which improved services are contemplated are notified that unless the service connections are installed by the time of the commencement of the paving work, the city reserves the right to install all necessary connections, and assess the cost of the same against the property to be benefited by the service.

The charter of the city, adopted in August, 1913, prohibits the tearing up of the surface of an improved street within five years from the date of its acceptance by the city, excepting by permission of the city commission, a four-fifths vote being necessary to secure the permission. The contracts of the city for street paving require a five-year maintenance bond from the contractors, and prohibit the opening of any street within the five-year period, excepting with the consent of the contractor and his bondsmen.

### PAVEMENT MAINTENANCE.

In addition to the construction policy of the city, which is designed to reduce to a minimum the depreciation in streets, it was found necessary to work out an operating policy for the maintenance of streets in parts of the city where the underground construction had depreciated to the point of needing replacement, or where former officials had failed to require the completion of all underground construction before the permanent surfacing of the streets.

The policy now being followed was recommended to successive city councils, for several years previous to the adoption of the commission-manager plan of government, by chief engineer M. J. Bahin, but was never adopted. At the beginning of this year, chief engineer Bahin renewed his previous recommendations, this time to city manager Ashburner, with the result that they were incorporated in an ordinance, which was passed by the city commission in February.



The ordinance makes it an offense, punishable by a fine not to exceed one hundred dollars and the cost of prosecution, to make any opening or excavation in any street or alley in the city, without following the procedure laid down in that piece of legislation.

Persons desiring to make openings or excavations are first required to make written application to the chief engineer, upon a form furnished by the city, for a permit. The application must state the location, size and purpose of each opening for which a permit is desired, the kind and extent of any pavement necessary to be removed, the date upon which it is desired to commence work, and the names of all persons for whose benefit such work is to be done.

Schedules of the cost of backfilling and resurfacing of trenches for the various kinds of pavements in Springfield are kept on file in the office of the chief engineer, the cost being based upon a unit price per lineal foot of trench of a given depth in each kind of pavement. From these schedules, the approximate cost of backfilling and resurfacing the street is determined, and the applicant is required to deposit in the office of the city manager the amount designated in the schedule for the particular job. Special estimates of the cost of backfilling may be made for work which cannot be covered in the general schedule.

The money deposited by applicants for trench permits is turned over to the city treasurer each day, with a report to the city auditor of the amount of the deposit for each permit, and the money so deposited is placed to the credit of a special repair fund.

The permits issued for trench openings are numbered serially, and state the name of the applicant, the location, length and depth of the trench, the character of the street surface, the amount of the deposit paid, the date of issue, and the dates between which the openings may be made.

Three copies of the permit are made, one being issued to the applicant, the second to the plumbing inspector (if a sewer connection is to be installed) or to the water-works department (if a water connection is to be made), and the third is kept on file in the office of the chief engineer. An index of the permits issued is kept by the chief engineer, showing the number of each permit issued for a trench in any one of the streets of the city.

After a trench is excavated and the repair made or the new service installed, the holder of the permit notifies the chief engineer in writing of his readiness to have the backfilling work done. Inquiry is then made, by the engineering department, of the department in charge of the inspection of the work, as to the readiness of the trench for backfilling, and upon finding that the work so far as it has progressed has passed inspection, a post-card is mailed by the engineering department to the holder of the permit, notifying him that at seven o'clock on the morning of a given day, the city will assume all responsibility for the trench. Until that hour the holder of the permit is required to keep the trench properly guarded.

The backfilling is done by employees of the city, under the direction of the foreman of street repair. After the trench is resurfaced, it is inspected by an engineer and the street repair foreman makes a report to the chief engineer showing the actual cost of the work, including labor and material, and the engineering department adds the actual cost of inspection.

Each job is designated by the number of the permit covering it. At the end of each month, the engineering department certifies to the city auditor the actual cost of backfilling and repaving on each job. If the cost is

less than the amount of the deposit for the job, a refund is issued to the holder of the permit for the difference, while an additional deposit is required in the event that the cost is in excess of the amount of the deposit.

The schedule now in use divides all trenches into three general classifications, according to depth, and in each classification a unit price is fixed for lineal foot of trench for each kind of street surface.

The first classification includes all trenches four feet deep and less, and limits their width to thirty inches; the second classification places the same limitation upon width, but increases the depth from four to seven feet, and the third classification extends the width to forty inches, and the depth to twelve feet.

The amount of deposit required per lineal foot in each classification, for each kind of street surface, is shown by the following table:

| Surface   | First  | Second | Third  |
|---|--------|--------|--------|
| Brick .....                                     | \$1.02 | \$1.20 | \$1.61 |
| Sheet asphalt .....                             | 1.34   | 1.52   | 1.74   |
| Asphalt block .....                             | 1.59   | 1.77   | 1.99   |
| Asphaltic concrete .....                        | 1.24   | 1.42   | 1.86   |
| Medina stone .....                              | 2.14   | 2.32   | 2.54   |
| Granite .....                                   | 2.14   | 2.32   | 2.54   |
| Wood block .....                                | 1.74   | 1.92   | 2.14   |
| Six-inch waterproof macadam (poured) .....      | .74    | .92    | 1.32   |
| Six-inch waterproof macadam (penetration) ..... | .59    | .77    | 1.17   |
| Eight inch waterbound macadam .....             | .44    | .62    | .97    |
| Eight inch gravel .....                         | .34    | .52    | .84    |

No deposit is required upon trench work back of the curb line. Over three hundred permits have been issued since the new system was put into operation in March, and the results so far obtained have been highly satisfactory. The engineering department has the power of regulating the trench work so as to prevent an accumulation of work, and this makes it possible to keep a small force of first-class laborers employed constantly.

The additional cost of equipping the trench backfilling gang is very small, nothing being required outside the regular equipment of the street repair force. When a trench is backfilled, the surface of the street upon all forms of construction having a concrete foundation is removed for a foot or more all around the trench, and after the trench has been properly tamped, the street is resurfaced over both the backfilling and the solid earth surrounding it, giving increased stability to the paving.

The majority of the plumbers of Springfield express themselves as being well satisfied with the arrangement, which relieves them of the necessity of having to keep men and equipment for resurfacing streets. The public generally appears to approve of the new plan, as against the old way of permitting anyone to repair streets.

In the case of public service corporations, special arrangements have been made whereby they are permitted to make such openings as are necessary for immediate repairs, notifying the city manager each day of their action. The Springfield Gas Company has an arrangement with the city by which all repaving, which under its franchise may be done by the company, is done by the trench repair gang.

In the opinion of the management of the company, this arrangement is more advantageous than that provided for in the franchise. All of the public service corporations operating in the city have shown a decided willingness to co-operate with the city in the maintenance of its streets.

In past years, a large number of repair jobs on mains

and service pipes in the paved streets of the city were made necessary by the deterioration of underground construction, as the result of electrolysis. However, since the first of the present year, steps have been taken by the different companies operating electric lines within the city to install a system of electrolytic mitigation which promises much better results than have been obtained in the past. The Bureau of Standards at Washington is co-operating in the solution of the problem, which primarily deals with the preservation of metallic underground construction, but which is a large factor in the preservation of street surfaces.

## MOTOR APPARATUS AT SALEM FIRE.

### Prompt Responses and Quick Runs From Several Cities Within Fifteen Miles Radius to Aid the Threatened City—Services Rendered.

The disastrous fire in Salem, Mass., on June 25 serves to bring out a number of the advantageous features of motor fire apparatus, and especially the facility with which such apparatus can be sent to the aid of adjacent towns. About noon of June 25 appeals for aid were received by towns for a number of miles from Salem in all directions, and the departments in these towns responded magnificently, and it was undoubtedly due to their aid that the fire was prevented from wiping out practically the entire city. We have obtained from the chiefs of seven of the cities which rendered aid descriptions of the part played by their apparatus in the fire.

The call for assistance was received by Chief George P. Cahoon of Swampscott at 1.58, and at 2 p. m. he had started an American La France triple combination on the six miles to Salem which it covered in just 10 minutes, and 5 minutes later had two streams playing on the fire. The engine worked for 16 hours and 45 minutes, making four shifts during that time, but except for these did not stop pumping for a single second. It had cut two 500-foot lines, each under 180 pounds pressure at the pump all the time. On arriving back at the engine house the machine was found to be in as good condition as when it left for the fire. When this engine first started it experienced such a lack of water that the compound gauge at one time showed 20 inches vacuum. The first shift was made when this first position became too hot. Chief Cahoon took with him the Lowry hydrant chuck because he knew there would be a scarcity of these when the other apparatus arrived. Nozzles with  $1\frac{1}{8}$  inch tips were used on each line of hose. At the second stand plenty of water was obtained, and the pump operated here for 9 hours and 15 minutes. The next stand was occupied for 4 hours and 21 minutes with one 650-foot line of hose carrying a  $1\frac{1}{8}$  inch nozzle. The pressure here reached 186 pounds, and the engineer was ordered to lower the pressure to enable the men to handle the stream more easily. The last stand was occupied for one hour and 25 minutes with one line of hose. Altogether the pump operated for 15 hours and 31 minutes and the motor was running continuously from 1.59 p. m. on the 25th to 7.20 a. m. on the 26th, a total continuous running of 17 hours and 21 minutes. (On the morning of the 25th, before starting for Salem, the motor had run two hours and six minutes at three different fires.) Among the apparatus sent was an engine built by the Fore River Shipbuilding Company, which was in the vicinity at the time and hastened to render service. On arriving at the fire this engine was directed by Joseph T. Swan, chief of the Everett fire department, who had charge of the fire fighting in the

southern part of the city, to couple up to a hydrant from which another engine had been endeavoring unsuccessfully to draw water. The Fore River engine was able to obtain water from this hydrant and supplied five lines with a pump pressure of 110 pounds. In the opinion of chief Swan the work of this engine is to be given the principal credit for preventing the Salem conflagration from going southward. This engine worked for 8 hours and 30 minutes.

Chief David M. Hudson of Chelsea received a call for aid at 2.51 p. m., and one minute later a first size triple combination motor pumping engine made by the Robinson Fire Apparatus Manufacturing Company, having a capacity of 1,200 gallons per minute and with a crew of 9 men, left the station. Immediately on reaching Salem it began work furnishing three effective streams for about two hours, when the engine was moved because of the spread of the fire. Shortly after this the water gave out and the engine was stopped until a new location was obtained. This engine moved six times during its operation at this fire, at one time losing a line of hose in order to save the machine. The crew which accompanied the engine did good work with chemical streams also, putting out fires in several dwellings. The engine truck worked for about ten hours. A second call for assistance was responded to by a Knox combination hose and chemical and seven men. This crew worked 11 hours, at one time being connected up with a line to the Knox pump from Reading. It also used chemical equipment to advantage in extinguishing fires in dwellings.

Lynn, Mass., through Chief E. E. Chase, sent in answer to the first call a Ahrens-Fox motor driven pump and hose wagon of 700 gallons capacity, which worked 19 hours. The run of  $4\frac{1}{2}$  miles to Salem was made in 12 minutes. The engine was required to move eight times during the 19 hours of service. The next call was responded to by a Seagrave combination chemical which made the run in 9 minutes and worked about ten hours. Following this, a city service truck with a Knox-Martin tractor attached made the run in 14 minutes and worked  $15\frac{1}{2}$  hours. There was also sent an Amoskeag extra first size engine with an American and British tractor attached, accompanied by a hose company with a Federal truck which made the run in 14 minutes and worked seven hours. All of the apparatus worked in good shape and there were no break-downs.

The Reading department responded to a call from Salem about 4 p. m., Chief O. O. Ordway sending a Knox triple combination at that time which reached the scene of the fire in 30 minutes. Some difficulty was experienced in finding a point where plenty of water could be obtained, but it was finally drafted from a stagnant pool for two hours through 20 feet of suction hose and delivered through a line of about a thousand feet of fire hose. The engine then moved to a large shoe factory where it drafted through a canal for  $3\frac{1}{2}$  hours, using the same lengths of suction and fire hose as before. The apparatus was then ordered to the hospital where it used a hydrant for five hours steady pumping through two lines of fire hose each 1,000 feet long without experiencing the least trouble of any kind. The apparatus reached home at 7 o'clock the next morning. It had used since leaving for the fire the day before, 40 gallons of gasoline and 6 quarts of cylinder oil.

Manchester received the call for assistance at 5:10 p. m., and immediately Chief James Hoare sent their Knox motor truck, with 1,200 feet of hose and chemicals and a crew of 8 men. The truck covered the distance of 11 miles in 16 minutes. The men worked at chemicals until the arrival of Manchester's Amoskeag steamer, which was drawn to the fire by one of the Paine Fur-



nitire Company's trucks which happened to be passing through the town. The steamer reached Salem in 40 minutes with 12 men on the board, making 20 men in all sent from Manchester. Hose had already been laid for the steamer, and as soon as it arrived it connected up and worked continuously for 12 hours, arriving home at 8:30 next morning.

Chief Bacon of the Medford fire department states that they received the call for help at 5:10 p. m., and immediately sent a Knox combination hose and chemical wagon carrying 1,250 feet of 2½-inch hose, a chemical tank of 40 gallons capacity, 300 feet of chemical hose and the usual equipment of minor apparatus, with a crew of 8 men in charge of Captain Ordway. This wagon reached Salem 40 minutes from the time of receiving the call and immediately connected a line with the Fore River auto pump already referred to. This line was run out 850 feet and held the fire at the point where the crew was stationed, working at this point until 9 p. m. A second class Amoskeag was sent to Malden to be loaded on a car which would carry it to Salem, but before it had left Malden word was received that the water was running short and that the engine could not be used.

The property loss from the Salem fire is estimated at about \$15,000,000. Although there were some instances of scarcity of water, it seems evident that the largest responsibility for this wide-spread destruction was due to the fact that most of the buildings are of wood. Many of the fires were started by embers falling upon wooden shingles. The Paterson fire and many others have demonstrated the great danger which lies in roofs made of inflammable materials, since the spread of fire by flying embers in the majority of cases begins with roof fires. This, of course, does not apply to the continuous progress of fires by direct spread from building to building. It is the multiplicity of centers of conflagration, however, which present the most difficulties in fighting fires, such as that at Salem.

Throughout the day fire apparatus had the right of way on all roads running to Salem. The fire departments of the cities of the eastern part of Massachusetts are perhaps more completely motorized than in any other section of the country, and it is said that the final

extinguishing of the Salem fire before more damage was done was largely due to the prompt arrival of such apparatus from the surrounding towns.

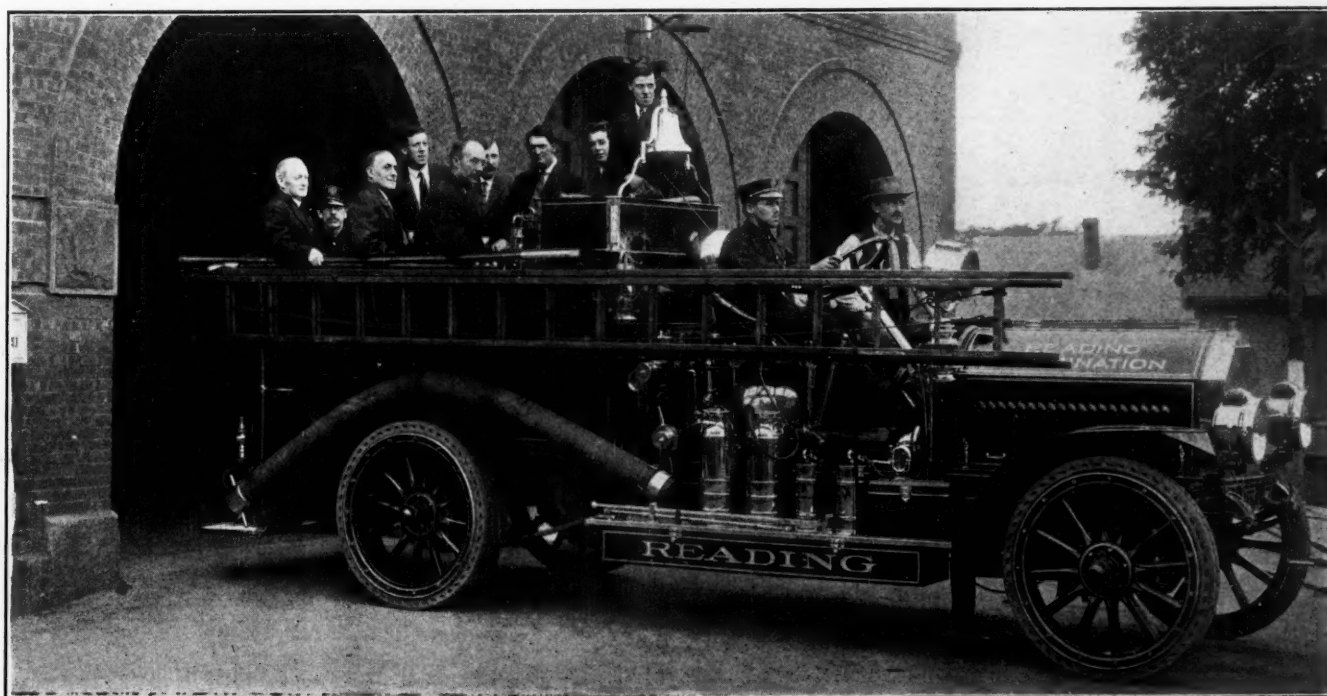
It goes without saying that the fire department of Salem itself was using all of its apparatus to the limit. For instance, Chief William O. Arnold reported that one combination chemical and hose motor car of American La France make travelled 87 miles between 1.37 p. m. of June 25 and the morning of the 27th, and answered 19 alarms between the former hour and 12.30 p. m. of the 26th.

#### THE MINNEAPOLIS INCINERATOR PLANT.

In our issue of June 11 we stated that the Milwaukee refuse destructor was perhaps the only one in this country which had been continuously utilizing steam generated by it for uses outside of the plant, but we find that in making this statement we overlooked the Minneapolis incinerator plant. That city has operated since June 1, 1912, two Decarie incinerators, which last year consumed about 15,000 tons of garbage. In connection with the incinerator plant an electric plant is operated partly by heat from the incinerators and partly by the burning of coal. Heat is also furnished for the workhouse and Hopewell Hospital. The electric plant furnishes light for the workhouse and hospital and also for 212 series magnetite arc lights for streets in the vicinity. The lighting department of the city is paying for these lamps at the rate of \$60 per lamp per year.

Altogether, the Health Department received for heat and light furnished last year \$25,861.90. Burning the garbage cost \$16,403.10 for payroll, \$4,448.56 for coal, and \$1,099.90 for supplies, repairs, etc. Additional coal used in heating the workhouse and hospital (which are located 1,500 feet from the crematory) cost \$3,628.84. The Health Department estimates interest on the crematory plant at 4 per cent and depreciation at 3 per cent, which, on a cost of plant of \$50,000, gives \$3,500 for these two items. This gives a total cost of \$29,080.40 for expenses in connection with burning garbage and extra coal for heating.

Just how much heat is derived from the crematory for generating electricity does not seem to be calculable



READING'S TRIPLE COMBINATION, WHICH AIDED AT THE SALEM FIRE.

from the figures given in the annual report, but this shows that in producing 578,450 kilowatt hours, there were consumed by the electric plant \$3,124.96 worth of coal. Figuring in the office expenses, interest at 4 per cent and depreciation at 3 per cent on the electric plant, it is calculated that the cost of generating the current is 2.58 cents per k.w.h.

Altogether, combining the expenses of both crematory and electric light plants, and including interest and depreciation, the department estimates the total cost during 1913 as \$44,000.89. The revenue from heat furnished by the crematory plant was \$12,111.17, and that from light furnished by the lighting plant was \$13,750.71; a total revenue of \$25,861.90. This leaves the net expense of operation as \$18,138.99. Charging this net expense to the crematory gives a cost of \$1.13 per "tank." The operating cost per tank with no allowances for revenue was \$1.37, or \$1.58 including interest and depreciation. It therefore appears that the profit of utilizing the heat from the garbage and also that of the electric light plant, combined, averages 45 cents per tank of garbage.

#### REFUSE DISPOSAL PLAN FOR CHICAGO ADOPTED.

In our issue of May 14 we published an abstract of the report made by J. T. Fetherston and I. S. Osborn on the collection and disposal of Chicago's refuse. This report was carefully gone over by the City Waste Commission in several meetings, and the commission recommended that the city council adopt the recommendations of these engineers, with one or two modifications, which was done on June 15. The report of the commission, including that of the engineers, has been published.

It is a matter for congratulation to both the commission and its expert advisers that the advice of the latter is followed so closely in the plan which has been adopted as a basis of future action.

Referring to our published abstract of the report, the recommendations there given in full were adopted by the commission (although the form of expression was changed in several instances) except that in No. 10 it is recommended that receiving stations be provided for *vehicle or* motor trucks (the words in italics being added); No. 14, providing for unit costs and efficiency records in the maintenance division was omitted, and in No. 15 the words "adequate sum" and "sufficient funds" are substituted for exact figures.

The experts considered in detail six plans, and recommended that known as D. This recommendation was accepted and endorsed by the commission in its entirety, except that it proposed an additional loading station, at Goose island, as being a desirable site for an incinerator, thinking it possible that the Chicago avenue site might prove to be too small for all the service proposed for it. It also suggested as a possibility the omission of the Wentworth avenue loading station by increasing the length of team hauling in this district.

"The commission recommends that the city proceed at once to secure the property north of the present plant, bounded by 39th street and the river, and proceed to erect thereon a complete, thoroughly up-to-date reduction and incinerating plant. This will permit the operation of the present plant during the period of transition from the present arrangement to the complete introduction of the proposed project. The estimated cost of reduction plant and additional ground is \$1,000,000.

"Your commission recognizes that it may be impracticable immediately to put in effect in its entirety the suggested project. We feel, however, that affirmative action should be taken on the project as a whole in order

that the work may go on progressively until the whole system is in operation.

"As a beginning, we recommend especially the rebuilding of the reduction plant as outlined above, and the erection of incinerating plants at the following points:

|   |           |
|---|-----------|
| Goose island. Estimated cost, including site....                | \$ 50,000 |
| Reduction works. Estimated cost, including site                 | 35,000    |
| Austin and Claremont Aves. Estimated cost, including site ..... | 37,000    |
| Stony Island Ave. and 95th St. Estimated cost..                 | 100,000   |

The last-named plant is for the destruction of combined garbage and rubbish."

The city council adopted a resolution "That the City Council do, and it hereby does, accept in principle the conclusions set forth in the report of the Waste Commission."

#### TRACTION ENGINES ON PENNSYLVANIA ROADS.

The Pennsylvania Legislature on July 7, 1913, passed an automobile law, among the provisions of which were certain restrictions on the licensing of traction engines and trailers by the Automobile Division of the State Highway Department. This law authorized the highway commissioner to make certain rules and regulations governing these machines while on the highways, which he did, but they were vigorously opposed by the agricultural interests of the state.

The state highway commissioner, Edward M. Bigelow, apparently recognizing some foundation for these objections, decided to hold the matter in abeyance until the next legislature could have an opportunity to hear the farmers' side of the question and amend the law if it should see fit. He has accordingly rescinded the rules for this season, and on August 10 ordered the Automobile Registration Division to accept all applications for the registration of traction engines or trailers when received on a form of application to which no copy of the rules and regulations is attached.

This method of application has been approved by traction engine owners throughout the state, who have requested that the present form of application, incorporating rules and regulations regarding the operation of traction engines, be discontinued. New form blanks have been printed for use in conformity with this order.

#### LICENSING ENGINEERS IN IOWA.

At a recent meeting the Iowa Engineering Society recommended the adoption of a state law for the licensing of civil engineers and surveyors and gave out an approved draft of such a bill. Under this proposed law the registration and licensing of a civil engineer or land surveyor would be an entirely optional matter. There is nothing in the law requiring any practicing engineer to take out a license unless he so desires. Within one year of the passage of the law, any engineer at present employed in practice in Iowa and having the requisite amount of experience might receive a license on application, by complying with certain formalities. After the expiration of one year from the passage of the law, an engineer could secure a license only by passing an examination, except that an engineer possessing an equivalent license in another state might receive a license in Iowa upon presentation and proof of this other license. The power to give examinations and grant licenses would be vested in a State Board of Examining Engineers, members of which would be appointed by the governor, each member of the board to be a professional civil engineer of at least ten years' active practice.



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Subscribers are requested to notify us of changes of address, giving both old and new addresses.

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Subscribers desiring information concerning municipal matters are requested to call upon MUNICIPAL JOURNAL, which has unusual facilities for furnishing the same, and will do so gladly and without cost.

AUGUST 13, 1914.

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## Suggestions by Employees for Improving the Service.

Fire Commissioner Adamson of New York realizes (what every successful director of men knows and many contractors have profited by) that the rank and file contains many men who are observant and critical of the details of the work in which they are engaged, are practical, resourceful and often capable of originating improvements in methods which would add greatly to their efficiency or to the excellence of the results obtained.

He has accordingly announced that a medal, to be known as the Administration medal, will be awarded annually to that member of the uniformed force below the rank of chief who has submitted during the year the best suggestion for the improvement of the department. The suggestion can apply to any part of the work of the uniformed force in developing apparatus and appliances, in improving existing methods or in the administration of the department.

The idea seems to be an excellent one, which could be adopted to advantage not only in the fire departments of other cities but in other departments as well. We have known valuable ideas of this kind to be lost because the originator thought—perhaps correctly—that credit for it would be appropriated by a disliked fore-

man or other higher official; but if some plan could be followed by which each man received credit for any suggestions worthy of adoption we believe that many such would be received; especially if all employees be included, such as those in sewer, water and pavement construction gangs, street cleaning, etc. We would suggest that the medal be supplemented by preference in promotion to higher rank, by slight increase in pay or other material reward.

## Reliance in Experts.

It is encouraging to note that city officials and citizens generally are becoming increasingly appreciative of the value of the advice of engineers and other experts. Less and less do we find costly and important works begun without any expert advice or even conducted contrary to such advice. Cities are even employing experts to teach them how to keep their accounts instead of relying on a grocer-treasurer. A committee appointed in Lima, Ohio, to report upon the building of a \$400,000 sewage treatment plant advises spending \$5,000 on expert advice as a preliminary; and the city council of Chicago on June 15 adopted, with only one unimportant change, the recommendation of the consulting engineers concerning the comprehensive scheme for the collection and disposal of the garbage of the entire city.

This is as it should be. Care should be exercised, of course, in selecting the adviser, for there are "consulting engineers" and "experts" in various lines who have only their own authority for posing as such; but a reliable expert judiciously employed is worth many times his hire.

## The War and Municipal Bonds.

Municipal bonds have naturally felt the effect of the war in Europe, along with all other securities. During the first six days of this month ten or more cities received no bids for bonds offered and two thought it advisable to postpone advertised sales. But this is not to be wondered at nor should cities become alarmed thereby as to their future finances. During July the market for municipal bonds was better than ever, many selling on a basis of 3.71 per cent to 4.40 per cent; and the war situation can certainly have no effect on the stability of the finances of United States cities.

Railroad and industrial securities might be affected in their actual as well as their market value by the effect of the war upon commerce; but the only effect upon municipal bonds would seem to be the general withdrawal of money from investment, and this will be but temporary, in the judgment of financiers. When money again seeks investments, in a few days or weeks, the municipals will, it would seem, be still more favorably considered than during the past few months.

We advise cities, therefore, not to rashly close down work or postpone projects indefinitely, thus throwing many citizens out of employment, but to act on the assumption that in a very few weeks they can raise money on terms at least as favorable as a year ago and possible as those of this spring. On the other hand, however, every effort should be made to avoid selling at high rates of interest long term bonds which will commit the city to the payment of such interest for many years to come.

## Location of Shade Trees.

The article published last week under this head should have been credited to C. O. Ormsbee, of Montpelier, Vt., as the author. By an oversight his name was omitted from the heading.

# The WEEK'S NEWS

Illinois, Indiana and Maryland State Roads—Tacoma and New York Street Work—Typhoid Threatened in Telluride—Water Famine—San Francisco to Buy Water Works—Omaha Rates—Municipal Lighting in Michigan—New York's Borrowing Limit—Commission Government for Sandusky—Superior Victorious in Street Car Fight—Franchises in Portland, Ore., and Des Moines, Ia.—Toledo Votes for Municipal Cars—Terminals and Markets in New York—City Planning in Boulder, Colo., and Paris, Tex.

## ROADS AND PAVEMENTS

### Illinois Commission Wants Fifty-Foot Roads.

Springfield, Ill.—A resolution adopted by the Illinois highway commission is opposed to several petitions which have been presented calling for the narrowing of roadways under the provisions of the Tice road law. It is the sense of this commission that the standard width of the right of way of state aid roads be at least 50 feet and that no state aid road be reduced to a less width. The commissioners of Bruce and Farm Ridge have received petitions asking that highways be reduced. The petition received by these towns jointly was acted upon adversely because of the nature of the roadway, which would deprive the commissioners of sufficient space for maintaining a safe grade. Considerable farm land in this vicinity, it is said, is being wasted by being used for road purposes where there is but little traffic, but there are other roads where even fifty feet is none too wide to accommodate the traffic. The Tice law does not make it compulsory upon the commissioners to grant the prayer of the petitioners, the matter being left almost entirely to the judgment of the men elected to look after the highways of the town, and the resolution will probably cause the commissioners to go a little slow in narrowing any roads.

### \$3,000,000 Concrete Roads in Indiana This Year.

South Bend, Ind.—Bonds in the sum of over \$3,000,000 have been issued in Indiana this year for the construction of concrete roads. At Rochester in Fulton county an issue of \$90,000 has been voted and at Fort Wayne six miles of roadway will be built at a cost of \$80,000. The largest expenditure will be in Washington township, Marion county where 27 miles will be built costing \$400,000. Wayne county will build five miles for \$87,000, and Elkhart county will pay \$72,000 for six miles. At Anderson \$35,000 has already been raised, and petitions are filed for six miles more of road. Vermillion county is building three miles at a cost of \$40,000.

### Lay Out New York's Interborough Road.

New York, N. Y.—The proposed Interborough Parkway, to connect Highland Park in Brooklyn with Forest Park in Queens, has been formally laid out on the city map by the Board of Estimate. This is the first step, which commits the city definitely to the carrying out of this much advocated improvement, which will provide Brooklyn with a real boulevard to the roads of Long Island. No attempt was made by the board to apportion the cost of the proposed boulevard. It will not be made a general city charge, but the indications are that the cost will, in part, be apportioned between Brooklyn and Queens, while the city at large will contribute a considerable share of the expense. The details of apportioning the cost will be worked out by the Committee on Assessments, which is composed of Borough President Mathewson, Mayor Mitchel and Controller Prendergast.

### Test Right to Use Lincoln Markers.

Sterling, Ill.—The right to use the Lincoln highway signs to mark highways not designated as Lincoln highway, will probably be tested here in Sterling. Alderman W. J. Doherty maintains that he has a perfect right to place signs on streets here and he declares that the removal of the signs by State Consul Corkings was only temporary. He maintains that he will replace them. The Lincoln Highway Association announces that the Lincoln highway markers are copyrighted, and that the signs can-

not be used for any other purpose than to mark the highway, and that Mr. Doherty or any other person has no right to use markers, and that the route of the highway cannot be changed without permission of authorities.

### Oiling Maryland State Roads.

Baltimore, Md.—The annual work of spreading oil on the state roads has been completed at an outlay of \$185,000. So thorough and complete has been the work that even some of the concrete roads have been oiled. Members of the State Roads Commission are convinced that the money spent in oiling the improved highways is well spent. The oiling of the roads has not interfered with the other tasks with which the State Roads Commission is kept busy. The commission is building a mile of road each day through the score or more contractors, who have their work well in hand.

### Street Work in Tacoma.

Tacoma, Wash.—Replying to a recent complaint from property owners at the amount of street improvements being made by the city under the local improvement district law, Public Works Commissioner Woods has issued a statement showing that the street work in 1914 will be about one-third of what it was last year. The statement shows that the street improvements made in 1913 were about \$160,000 less than in 1912.

"The public works department never orders an improvement," said Commissioner Woods. "Each project must be ordered by the council and except in cases of sidewalks where the walks already down are in bad condition and dangerous, opening the way for damage cases against the city, the council always abides by the wish of the majority. Street improvements are initiated by property owners themselves. They circulate petitions among the owners who will have to pay for the improvement, and then file the petition in the city engineer's office. The petitions are then checked up to see if all who signed it are bona fide property owners. If there is a large number of property owners who want the improvement, postal card notices are sent to all owners in the district, notifying them that on a specified date the council will listen to any remonstrances. In the meantime those who oppose the improvement may circulate petitions remonstrating against it. When the remonstrances are filed they are checked up, as were the others, and the result certified to the council. The council then acts. It has the power to order any improvement irrespective of whether any one wants it or not, but except in the cases of a few sidewalk contracts where the old walks were dangerous and new ones badly needed, the will of the majority is taken by the council as final. The council usually lends a more attentive ear to people who live in the district than to outside owners who care nothing about what conditions are like." Mr. Woods' statement follows:

|                     | 1911.        | 1912.        | 1913.        | 1914.        |
|---------------------|--------------|--------------|--------------|--------------|
| Paving .....        | \$235,331.00 | \$398,209.25 | \$189,618.00 | \$ 50,637.00 |
| Grading .....       | 61,101.45    | 57,580.35    | 66,879.00    | 14,813.00    |
| Grad. & planking .. | 27,762.40    | 58,793.00    | 30,903.00    | 4,265.00     |
| Grad. & sidewalk .. | 45,659.00    | 42,290.00    | 96,997.89    | 19,981.46    |
| Sidewalks .....     | 23,683.15    | 8,105.00     | 47,045.20    | 24,728.00    |
| Sewers .....        | 34,118.50    | 26,392.00    | 3,648.00     | 20,999.00    |
| Total .....         | \$427,655.50 | \$591,369.60 | \$426,091.09 | \$135,423.46 |

### Rock Crusher's Good Work on County Roads.

Janesville, Wis.—County Highway Commissioner Charles E. Moore of Rock County reports rapid progress on road work in his county and contracts are being let as fast as it is safe to attempt to supervise the work. At present the greatest handicap is the lack of a sufficient number of rollers. The four crushing outfits are proving a great success. They allow the use of coarse or sandy material that would otherwise be of little value, converting it into material ten times as valuable and enabling the use of material that is close at hand. These outfits have a capacity of as high as 150 cubic yards per day. They consist of 9 by 18 inches jaw crushers equipped with gravel conveyor and grizzly. The crushers were made by the Good Roads Machinery Co., of Fort Wayne, Ind. The crushed material is properly mixed with clay for binder, and water bound, and makes a splen-



did road. The road committee is investigating some of the roads that have been oiled in Dane county, and if the report is favorable, some of the Rock County roads may be oiled this year.

At present there are ten road, four culvert and two bridge contractors engaged in the work. They are located as follows: Drew & Garry on Madison road in towns of Union and Porter; Hughes & Perry on Hanover road in town of Rock; Ryan & Son on Milton-Indian Ford road in town of Fulton; Chas. Wileman on Milton Junction road in town of Milton; Brit & Tingly on Milton avenue road in town of Harmony; Finley & Townsend on Orfordville-Newark road in town of Spring Valley; William McGavock on Clinton-Beloit road in town of Turtle; Ish Wheeler on Milwaukee road in town of Clinton; George Hiller on Bergin road in the town of Clinton, and John Jones on Emerald Grove road in the town of Bradford. The culvert men are working as follows: George Hatton on Hanover road, town of Rock; Pat McGavock on Clinton road in the town of Turtle; B. L. Boyles on Mineral Point road in town of Janesville, and Lew Howe on Footville-Brodhead road in town of Spring Valley. Contractor Hammile is building a state aid bridge over Marsh Creek, and Northern Steel Concrete Company is placing the plate girder superstructure on the bridge at Happy Hollow in the town of Rock. Hughes & Perry have begun construction of Hanover road in the town of Rock.

#### **Santa Ana, Cal., Road Progress.**

Santa Ana, Cal.—Of the 107 miles of good roads projected under the \$1,270,000 bond issue 16.81 miles are finished, contracts let and either finished or under way for 76.34 miles. Of that 76.34 miles 59.53 miles are still unfinished, and of that 59.53 miles the concrete base is laid upon 39.44 miles and the road graded for 12.05 miles on which the base has not been laid. Over 1,000 tons of material are being used every day on the county's good roads.

#### **"Good Roads Day" for Louisiana.**

Baton Rouge, La.—Acting Governor Barret has issued a proclamation setting aside Thursday, Aug. 27, as Louisiana Good Roads Day. The police jury presidents are requested to issue a similar proclamation, at least twenty days prior to Aug. 27, and include in said proclamation a selection made by them of a sufficient number of overseers or managers, "naming the road or roads on which the citizens of each locality shall work, and directing the overseers or managers, after allotting to each overseer or manager his portion of road, to notify each citizen whose work he shall superintend, the kind of tool each shall be expected to use." The Shell act sets aside the last Thursday of August of each year as Louisiana Good Roads Day.

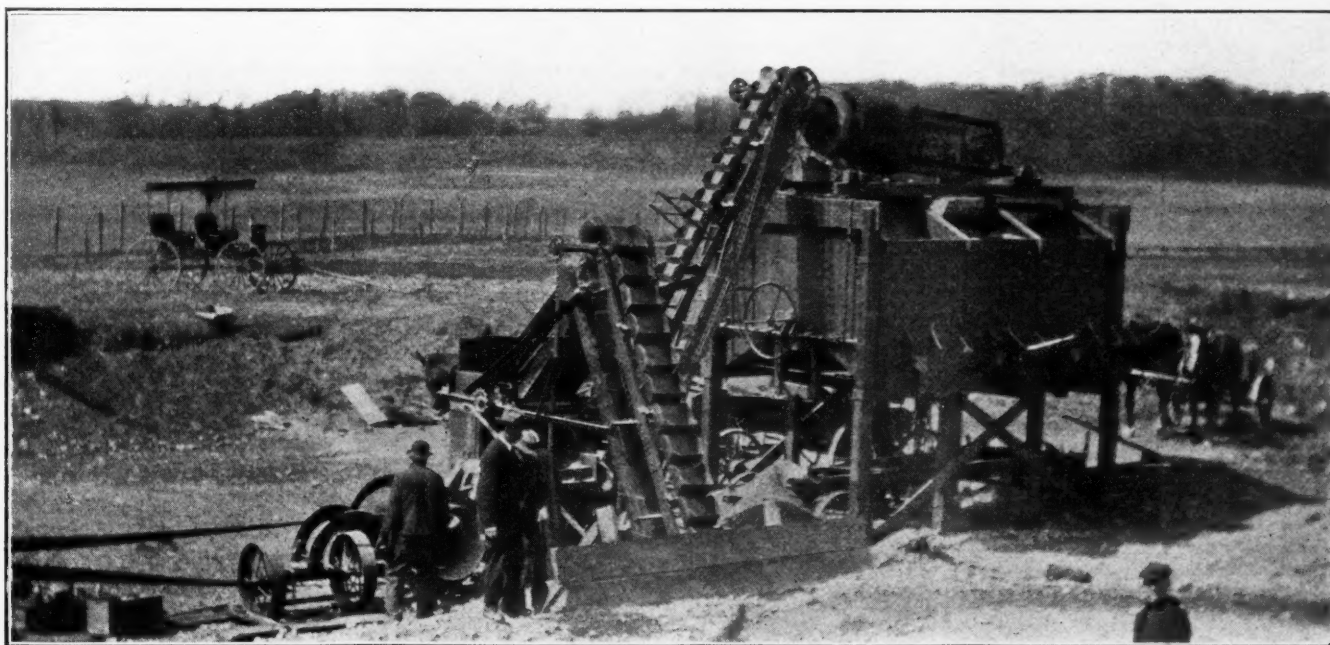
## **SEWERAGE AND SANITATION**

### **Typhoid May Follow Telluride Flood.**

Telluride, Colo.—A threatened epidemic of typhoid fever has added to the horrors of the cloudburst which cost the lives of two women and property damages aggregating \$275,000. Two cases of fever were reported to the authorities, who are investigating a dozen others presenting symptoms. Heavy rains increased the property damage resulting from the terrific downpour and seriously impeded the work of cleaning up streets and buildings submerged in eight to twenty feet of mud. A typhoid epidemic, it is feared, is certain to follow if rains continue to prevent the authorities from restoring sanitary conditions. Streets are filled with disease-breeding debris and the crowded condition of homes where refugees have been taken in has further involved the health problem. Preparations are being made to establish a quarantine, should such a step become necessary. The situation has been brought to the attention of physicians of neighboring towns. Tons of refuse were washed down into Telluride when the cloudburst struck a half mile above here. This has become lodged generally over the entire area of the town. More than 200 men built a flume into which it is proposed to wash the debris and refuse scattered throughout Telluride into the San Miguel river below here. The fire department proceeds to clean the streets with force nozzles. A number of cloudbursts in the past have been successfully kept from entering the town by the Cornet dam, but the wall broke beneath the terrible pressure of the storm. It was built fifteen years ago and will be immediately rebuilt, but of considerably heavier material.

### **State to Force Sewage Disposal.**

Binghamton, N. Y.—The trip of city officials to Albany to procure an extension of time for the construction of a sewage disposal plant or obtain information as to how the city can obtain money to construct such a plant in view of its charter limitations has failed. City Engineer John A. Giles, Corporation Counsel John Marcy and Commissioner of Public Works Burr Winsor went to Albany and conferred with the Deputy State Commissioner of Health relative to the situation. It has been stated here that the Deputy State Commissioner of Health when informed the city could not legally raise the money until the convening of the Legislature replied that the city had five years in which to complete and put in operation a sewage disposal plant in accordance with its agreement and the fact that it had allowed the years to pass without providing funds for the expenditure that should have been re-



CRUSHER AT WORK ON ROCK COUNTY, WIS., ROADS.

garded as a fixed charge was not the fault of the State. Therefore the city must find a way to provide the money and comply with its agreement at once or the Attorney-General would bring an action against the city to restrain it from emptying its sewers into the rivers and requiring a penalty of \$50 a day for each day the order is violated. This would mean a charge of \$350 a week from the date of the granting of such an order until the Legislature convenes and passes the necessary act, the bonds are issued and the sewage disposal plant completed, a matter of 18 months or two years. While plans for the intercepting sewer system have been prepared and approved by the State Department of Health, nothing has been done to acquire the land for a disposal plant, although the matter has drifted along for five years. It was hoped that the evidence of intention on the part of the city to construct a portion of the intercepting sewer system this year might placate the Department of Health, but failed in its purpose. Nothing now remains but for the administration to solve the problem of raising money for the immediate construction of the plant.

#### **Greensboro, N. C., a Flyless Town.**

Greensboro, N. C.—That Greensboro deserves the distinction of being the "flyless city" was the opinion of Dr. W. S. Rankin, secretary of the State Board of Health, who made an examination of the city. He said 98 per cent of the flies in Greensboro had been eliminated.

#### **Sewer Work in Youngstown, Ohio.**

Youngstown, O.—City Engineer Frank M. Lillie is preparing his report of last year, showing that up to January 1 of this year there were 121 miles of sewers in the city, installed at a cost of \$1,281,208. Fourteen miles of streets were paved last year which brings the total mileage for paved streets up to nearly 100 with an additional 22 miles of macadam. The total cost of these improvements is estimated at \$2,730,967. Nearly \$20,000 is the estimated cost of the work done in repairing pavements during the past year in Bryson and Hazel streets alone.

### **WATER SUPPLY**

#### **Burst Main Lifts Paving.**

Utica, N. Y.—Shooting from a 20-inch main under a pressure of from 95 pounds to 100 pounds per square inch, a stream of water undermined the entire surface of the roadway at the corner of Liberty and Hotel streets, and flooded the streets and sidewalks in the vicinity of the corner. Where first discovered the water rose into the air nearly three feet, lifting a heavy section of walk. A section of the paving for about 10 feet square was lifted nearly 18 inches by the heavy pressure of water. The flood lasted for nearly a half hour, for although the water had been shut off by employees of the Consolidated Water Company, that in the main on higher levels continued to pour up through the stone paving. The police roped off the corner and all traffic was turned into other streets. When the flood had subsided, workmen started digging down to repair the break. This was found to be nothing more than a leak in one of the joints of the pipe. The paving at this corner was lifted out of place about a year ago, when the big gas main there burst. A six-foot sewer also runs under the corner.

#### **Aqueduct Property Exempt.**

New York City, N. Y.—Justice Mills, in a decision handed down in White Plains, has declared void an assessment of \$15,776,300 by the City of Yonkers against New York City aqueduct property. The action has been watched with interest, because in twelve towns of the county outside of Yonkers property of the same nature had been assessed at about \$3,000,000. Justice Mills says the solution depends on whether or not the general tax act of 1909 repeals the provisions of the New York City charter which exempts aqueduct property in other counties from taxation. He says the Appellate Court has held the property to be exempt and that he follows the ruling of that court.

#### **Water Famine in Many Cities.**

Kokomo, Ind.—For the first time in its history, Kokomo is threatened with a water famine and local factories have been forced to shut down because of the shortage of water. The Indiana Railways & Light Company has almost exhausted its reservoirs and admits the situation is serious, and the Kokomo Water Works Company has issued warnings to all patrons to be as sparing as possible in the use of water. Wildcat creek is the lowest it has been since Howard county was organized. There has not been a general rain in Howard county since the middle of May, and some places have had nothing more than light showers since then.

Oakland City, Ind.—With the water works lake almost exhausted, Oakland City faces a water famine. A large force of men and teams is engaged in enlarging the lake, and the city will be prepared to keep the water when rains do come. Corn is drying up in the fields in this vicinity. Shade trees are dying in many places. Sprinkling of lawns has been prohibited by the water works authorities.

Carmi, Ill.—Harrisburg, with population of ten thousand, is suffering water famine. The light plant, ice factory and water works have been forced to close. Mayor Stokes, of Carmi, has made arrangements to supply several tank cars of water to Harrisburg daily. The drought and the fact the city is not on a river are factors causing the famine.

Salem, O.—Members of the city council and other citizens who held a conference with the state health board at Columbus have returned home convinced that Salem has in the securing of adequate water supply a very big problem. Chief Engineer W. H. Dittoe, of the state board, is investigating the situation, particularly in the inspection of the Country club lake over a mile west of the city, where it was proposed to secure an emergency supply for fire-fighting purposes. Whether it will be used is very problematical at the present time. If it should be appropriated, with adjoining grounds, for waterworks purposes it would probably entail an expenditure of \$100,000, which includes the cost of a filtration plant which would almost undoubtedly be necessary to make the water fit to turn into the city mains, even if it were not used for domestic purposes. General sentiment seems to favor the drilling of more wells nearer the city.

#### **San Francisco Buys Water Supply for \$34,500,000.**

San Francisco, Cal.—San Francisco has ended negotiations for buying its water system from the Spring Valley Company. The Spring Valley Water Company has received a letter, signed by the City Advisory Water Committee and sanctioned by the Board of Supervisors, in which the city of San Francisco agrees to purchase the water company's properties, with certain exceptions and under certain conditions, for \$34,500,000. The letter was sent after a formal conference between the advisory committee and the Supervisors. The decision was reached after several months of secret conferences, during which the terms of the offer to Spring Valley were discussed and practically agreed upon by the committee and the majority of the Supervisors. The main points provide for the payment of \$34,500,000, and except about 2,000 acres of the company's Lake Merced holdings. The money that has been impounded will be equally divided between the rate-payers and the company, and the company will be reimbursed, in addition to the \$34,500,000, for the money expended on the Calaveras dam and other recent improvements and additions.

#### **Reduce Water Rate.**

Omaha, Neb.—R. B. Howell, general manager of the metropolitan water district, has announced a further reduction of 5 per cent in water rates, to begin August 1, making the rate 22¼ cents per 1,000 gallons. This is a reduction of 5 cents on the dollar. This makes a total reduction of 38½ per cent since the city took over the water plant, July 1, 1912. The new reduction applies to consumers using 8,000 cubic feet or less per month. Mr. Howell says this includes 97 per cent of the users. In



six months after the plant was taken over July 1, 1912, rates were reduced 10 per cent. Six months later a similar reduction was made, and in another six months, a 13½ per cent reduction came. Under the operation by the Omaha Water Company, 97 per cent of the consumers paid 35 cents per thousand gallons. The two-year financial statement shows that the two years have yielded a reserve fund of \$185,916, sinking fund of \$260,000 and a surplus of \$206,982. The last two years of the old water company's management the operating expenses were \$532,000. During the first two years under municipal ownership the operating expenses, less interest and legal expenses, were a little less than \$500,000. It is pointed out that in addition to an actual decrease in operating expenses, there have been 2,700 new services added, that better water is being supplied, and the efficiency of the plant materially raised.

#### INCOME FROM OPERATION.

|  |                |
|--|----------------|
| Unmetered water .....  | \$134,064.90   |
| Metered water .....  | 1,187,823.19   |
| Water in building construction .....                               | 3,205.32       |
| Private fire line connections .....                                | 6,972.65       |
| Hydrant rentals from Omaha, South Omaha, Florence and Dundee ..... | 64,262.46      |
| Hydrant rental tax city of Omaha .....                             | 19,476.76      |
| Total .....  | \$1,587,805.28 |

#### INCOME FROM OTHER SOURCES.

|  |                |
|--|----------------|
| Labor and supplies sold .....                                | \$29,147.41    |
| Accounts purchased from the Omaha Water Co. ....             | 4,298.24       |
| Real estate rentals .....                                    | 4,430.23       |
| Interest on bank balances .....                              | 20,421.77      |
| Interest on investments .....                                | 28,024.02      |
| Premium on bonds sold .....                                  | 4,562.50       |
| Installation of service mains under special agreements ..... | 33,376.13      |
| Installation of service mains in water main districts .....  | 26,002.36      |
| Hay grown and sold .....                                     | 614.15         |
| Ice cutting privileges .....                                 | 2,000.00       |
| Miscellaneous .....  | 666.07         |
| Total .....  | \$153,542.88   |
| Total income from operation and other sources .....          | \$1,741,348.16 |

#### EXPENSES.

|   |                |
|---|----------------|
| Pumping department operation .....  | \$278,571.44   |
| Meter shop operation .....  | 47,126.54      |
| Repairs to distribution system .....  | 66,532.39      |
| General expense .....   | 110,466.72     |
| Discounts .....   | 15,812.62      |
| Interest and other expenses paid on outstanding bonds .....                           | 653,708.71     |
| Excess income over expenses of operation, maintenance and bond interest charges ..... | 569,129.74     |
| Total .....   | \$1,741,348.16 |

#### Lawrence, Kans., Situation Not Improved.

Lawrence, Kans.—Little hope for more water is given out as the water company's wells are being pumped dry every day and all that is left is the water that accumulates in the wells when the pumps are not running. So far no part of the town has been absolutely without water all of the day. The use of wells in town has been taken up where it is possible and the people are helping the water company in that way as much as they can. The ordinance forbidding the use of the city water for sprinkling purposes has little effect. The water company says they can see little difference in the amount of water consumed daily. Meanwhile the search for water continues. If the search proves successful it is probable that the people will be asked to vote bonds to construct a municipal water system. The investigation will probably start in North Lawrence as the social survey that has just been completed reveals the fact that the wells in North Lawrence furnish better water than any others in this vicinity. The first tests will be made by pumping from wells to test the supply of the water and the probability of getting a sufficient supply for the town from wells.

#### Columbus, Ga., Buys Water Plant.

Columbus, Ga.—The city completed plans for the purchase of the property of the Columbus Water Supply Company, exclusive of that part in Alabama and on North Highlands, for the sum of \$325,000. The matter was finally settled after a number of conferences between representatives of the Water Supply Company and the City of Columbus were held with the idea of making a final settlement of the long litigation, by the City of Columbus buying the physical property of the company, instead of their building a plant and running it in opposition to the one already in operation.

The city's consulting engineer, Mr. Ludlow, of Winston, N. C., went over the property and made an estimate on it. Mayor John C. Cook has announced that improvements will be made immediately—among them to be increased hydrants, enlarged drains and pumping station. The deal ends a long struggle of thirteen years' duration between the city and the company—the former during this period making several attempts to establish a municipal plant.

## STREET LIGHTING AND POWER

### Michigan Cities Own Light Plants.

Lansing, Mich.—Statistics compiled by George H. Curtis, secretary-treasurer of the League of Michigan municipalities, shows that out of 51 cities reporting in June, 26 own municipal lighting plants. These are Alpena, Bay City, Brown, Coldwater, Charlevoix, Detroit, Dowagiac, Grand Rapids, Grand Haven, Harrisville, Hillsdale, Lapeer, Marquette, Marshall, Monroe, Niles, Petoskey, South Haven, Stanton, St. Clair, St. Joe, Traverse City, Wyandotte, Ypsilanti, Yale and St. Louis. Of these plants 17 are operated by steam power, and the balance by water or by steam and water. Of the cities in the list 11 are under the commission form of government. Eight of the cities have public markets and three others are installing them. Fifteen of the cities have public playgrounds, Grand Rapids boasting 10 such places for the use of the children. Detroit appears to be the only city in the state which disposes of its garbage efficiently by passing the problem on to a reduction company conducted by private capital. Bay City reports itself about to build an incinerating plant. A good deal of the garbage of the cities goes into rivers and other public water, some of it to dump piles and still more of it is taken care of by private contractors.

### Decide for Ten-Year Contract.

Evansville, Ind.—At a meeting attended by Mayor Benjamin Bosse, City Engineer James D. Saunders and President A. C. Blinn, of the Evansville Public Service Company, it was decided that the street lighting contract, to begin August 15, 1915, should be let on a ten-year basis, and that the city should spend not less than \$50,000 a year for street lighting. The decision on a ten-year contract was reached after President Blinn had submitted the comparative figures for lighting on five and ten-year contracts. The prices on a ten-year contract are: Open flame carbon arc, \$55 a year; 600-candle power nitrogen filled, \$54; 400-candle power nitrogen filled, \$40; 250-candle power nitrogen filled, \$27; 100-candle power nitrogen filled, \$18. The exact number of each type of lamp that will be needed will be determined by the board of public works and City Engineer James D. Saunders, acting in conjunction with the council committee. A completely new scheme of city lighting must be made out, in view of the fact that all the equipment will be new. President Blinn was also requested to submit a proposition as to what sort of an arrangement could be worked out to have the new system ready by January 1, instead of August 15 of next year, as the contract calls for.

### Orders Lower Gas Rate.

Martinsburg, W. Va.—An order of the West Virginia public service commission that the Manufacturers Light and Heat Company of Pittsburgh reduce the price of gas to its consumers, within the State, was upheld by the United States court of appeals. The company had appealed from the order, which was rendered last spring, after lengthy hearings. Attorneys for the company gave notice of appeal to the United States supreme court. The decision of the court denied the application of the gas company for an injunction and upheld the public service commission in every phase of the famous case. The finding of the commission in revising the rates for gas to consumers in West Virginia, which made a reduction amounting to \$121,000 annually, was approved by the court. The court also set at rest the question of the validity of the act of the legislature creating the public service commission, holding that this law is constitutional and above attack. The court also decided that the charges made by counsel for the gas company that Governor H. D. Hatfield had used coercive measures to force the Public Service Commission

into a hasty and premature decision in the gas company's case was without warrant or evidence to support it, and the court further declared that the commission in its hearings in this case last spring had given the gas company every opportunity to present its case in full, had the gas company been disposed to take advantage of such opportunity.

This suit was instituted in May of this year by the Manufacturers' Light and Heat Company, of Pittsburgh, a corporation with a capital of \$23,000,000 which at that time secured from the Federal Court a temporary restraining order to prevent the West Virginia public service commission from enforcing its decision reducing the price of gas to consumers in this State.

In reply to the case of the gas company, counsel for the Public Service Commission produced some startling figures, showing that the Pittsburgh concern has a total capital stock of \$23,000,000; that the investment was approximately \$15,000,000; that the gross income was \$6,568,000 and the net income \$3,390,000, for the year 1913. It was also shown that the production of gas by the Pittsburgh company reached a total of 31,000,000,000 cubic feet in 1913, of which amount 24,000,000,000 cubic feet was secured from West Virginia wells. Of this enormous production from West Virginia wells only 5,300,000,000 cubic feet was consumed in West Virginia, the remainder being pumped out of the State to Pennsylvania and Ohio. The defense also submitted figures showing in detail the operations of the many subsidiary companies of the Pittsburgh company, and claiming that the net income of these subsidiary companies in West Virginia ranged from 22 to 57 per cent. on the actual investment. The Public Service Commission, in making its ruling reducing the price of gas to the West Virginia consumers of this company, took the position that, in view of the \$8,000,000 of "water" in the stock, the company was entitled to a net return of 12 per cent., instead of from 22 to 57 per cent., from its subsidiary companies, which meant a reduction of \$121,000 in the yearly revenue of the company in this State.

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## FIRE AND POLICE

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### Fire in Town Without Water Supply.

Greenwood, Del.—Fire of unknown origin destroyed fourteen stores and residences in the town of Greenwood in Sussex County and other buildings of small size to a total number of thirty. Help was summoned from various towns in the State, and firemen from Seaford, Laurel, Bridgeville and a number of other places, arrived, and after six hours of hard work succeeded in saving the remainder of the town. Help was also asked of Wilmington, but before the machine could be entrained the order was countermanded. As the town has no water supply, the big fire engines of Wilmington would have been practically helpless had they arrived. The firemen summoned from other places arrived in a remarkably short time and did splendid work. The firemen, considering the lack of water supply and the fact that the town is composed almost wholly of frame buildings, did wonderful work. Chief H. W. Viven with the Bridgeville Department arrived first but as there was no water, only ladders and buckets could be used. The Harrington Department responded by loading their hook and ladder equipment on a freight train going south. The men fought for about three hours. Farmington was also represented by buckets and ladders. Dover received the call two hours after the fire broke out and responded under Chief Weimer B. Heite with the Valley-Springfield hose, chemical and ladder auto truck. The run of thirty-one miles was made in one hour and thirty minutes over bad country roads. The Dover men could only use their chemical. The total damage is estimated at \$49,000.

### Policemen Are Municipal Employees.

Lansing, Mich.—The industrial accident board has decided that a city policeman is legally an "employee" and not an "officer" and being an "employee," the city that employs him must pay him compensation if he is injured in line of duty or must pay his dependants if he loses his

life on duty. According to the workmen's compensation act, "officers" of corporations, municipal or private, do not come under the act, but only "employees." The decision was on a case appealed by the Pontiac city government. One day a motorcycle policeman was using a motor car, as his cycle was out of order. He took two other policemen in his car to give them a lift and a few minutes later went after a speeding motor car. At a railroad crossing the policeman driving the car had to turn short to avoid a collision with a train and his car went head on into a telegraph pole. One of the other two policemen in the car was killed. The city commission held he was not entitled to compensation under the act, as he was an "officer," not an "employee." The case went to arbitration and the arbitrators decided against the city's contention and awarded the widow compensation at the rate of \$9.13 a week for 300 weeks. This award the industrial board sustains.

### Fire Loss in Norfolk, Va.

Norfolk, Va.—According to the annual report of the Norfolk fire department made to the Board of Control by Chief McLaughlin, only 4 per cent. of the property endangered was destroyed. That this in a great measure was due to the quickness of the department in responding to alarms and extinguishing the incipient blazes before any headway was made, the figures showing the use of the chemical and other apparatus show. Of the 340 fires during the year, 290 of them were handled with chemicals, and only 50 of them required the application of streams. Property to the total value of \$6,164,873 was involved and the total loss was only \$249,876.97, or 4 per cent. The heaviest loss came in last August, when the total fire loss was \$67,717, and the lightest was in October, when the damage was only \$2,163. The department spent 444 hours and 33 minutes in action, and traveled 1,471¾ miles responding to alarms and returning. Chief McLaughlin recommends the purchase of a number of pieces of motor apparatus and of a fire boat.

### South Bend Needs High Pressure.

South Bend, Ind.—That there is sufficient water for fire protection but that some machine is needed to boost the pressure in the southern end of the city, is the opinion given by the board of safety. This statement follows the test made with the American La-France fire engine pump, in sections of the city where low fire pressure has afforded a problem for the administration.

In one instance the fire pressure at a hydrant in the elevated part of the city was boosted from 12 pounds—the standing pressure without the engine and pump connections—to 60 pounds, with the aid of the boosting engine. After many tests were made at various places it was decided the engine could force a stream of water sufficiently high. A boosting engine can be purchased from \$8,000 to \$10,000 and it is expected the board will arrange for the purchase of one soon. It is believed the booster will definitely settle the low pressure problem.

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## GOVERNMENT AND FINANCE

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### New York May Borrow Only \$12,668,503.

New York, N. Y.—The borrowing margin of the city is down to \$12,668,503, and the Board of Estimate, in the authorization of public improvements of all kinds will have to consider this until the credit of the city is raised by the increase in the assessment rolls, as prepared by the Department of Taxes and Assessments for 1914. Controller Prendergast's report explains why the Board of Estimate has adopted a conservative policy lately in the authorization of street improvements, limiting the authorization, in proportion to the assessment lists, which each Borough President sent to the Board of Assessors, so that the money expended by the city in undertaking and completing these improvements, might be returned to the city treasury.

Just what effect the small borrowing capacity will have on the final undertakings contemplated by the city, such as new subway lines, the South Brooklyn waterfront development, the Jamaica Bay Improvement, cannot be as-



certained for the present. There is a possibility that these improvements may be temporarily halted, until the borrowing margin of the city is increased by the confirmation of the new tax rolls. The marginal, railroad, however, will not be delayed.

According to the Controller's report, the city's receipts for the first six months of this year, aggregated \$343,882,164. Of this, \$115,118,628 was from taxes, assessments, water rates, docks and ferries, and the hundreds of items of miscellaneous revenue collectable by the city from every conceivable source. For the first six months of 1914 the expenses of the city aggregated \$318,711,319. Of this amount \$4,576,303 was in payment of taxes to the State and \$75,199,346 was in expenses of the city government. The outlay for permanent improvements aggregated \$35,912,965. Interest on the city debt, paid to outside holders, aggregated \$20,228,278. The city paid out in salaries, for the first six months of 1914, the enormous sum of \$57,835,797.

The investments in the construction of subways aggregated a grand total of \$223,129,121. Of this amount \$112,963,293 has been actually expended, leaving a balance of \$110,165,828 to be still provided. Existing subway lines operated by the Interborough Rapid Transit Company represent an investment by the city of \$58,835,043. The additional lines, now under construction, which are to be operated by the Interborough Company, in connection with the existing subways, call for a total outlay by the city of \$63,602,888, and the lines to be operated by the New York Municipal Railway Corporation, in connection with the elevated roads of the Brooklyn Rapid Transit Company call for an expenditure by the city of \$100,691,190. The roads still under construction—some of which are rapidly nearing completion and including the Brooklyn-Center street loop line—will require a total outlay on the part of the city of \$164,294,078, of which \$57,121,658 has already been expended on construction work.

#### **Sandusky Chooses Commission.**

Sandusky, O.—Registering the lightest vote that has been cast at an election here for thirty years, the voters of Sandusky by a majority of 107 voted to change their form of government to the commission city manager plan. The new charter will go into effect on January 1, 1916. The total vote cast was 2,685, of which 1,396 were cast for the charter and 1,289 against it. The campaign for the charter was carried on by the Charter League and consisted principally of noon meetings at the factories in the city. The new charter is patterned after that now in effect in Dayton and Springfield. It makes one radical change from these two documents in that it combines the offices of auditor and treasurer. The Socialists are given much credit for the victory. They claim a membership of 900 in their party here and it was figured that 90 per cent of the Socialists not only voted for the charter, but were out campaigning for it.

## **STREET CLEANING AND REFUSE DISPOSAL**

### **To Install Garbage System.**

Lawrence, Kans.—The Lawrence garbage disposal system will soon be in operation. At the last meeting of the Commissioners the matter was turned over to the Mayor and he is getting the system perfected as fast as possible and will soon have it working. The Mayor is to give a contractor as many blocks as he is able to cover three times a week and collect the garbage and all refuse that is generally left lying in the alley. Everyone will be required to have some kind of a closed garbage can and keep it in a convenient place so that the garbage collector can get to it handily and not be delayed in making his trips. A small sized box will also be required and will be used for tin cans and rubbish. Mayor Francisco is daily receiving bids from men who will do this work and are anxious to get the work. The average bid is fifty cents a block a week for three trips. Some complaint has come to the Mayor that there are some people who bury garbage in their back yards. This is against the city ordinances and will be handled as a misdemeanor.

### **New Street Flushers Ready for Work.**

Saginaw, Mich.—The new street flushers bought by Commissioner Holcomb, of the department of public works, upon authority from the council, have arrived. The flushers, three in number, were purchased from the Studebaker Company of South Bend, Ind. Two will be used on the east side and one in the west side business district and it is expected the yearly nuisance of dust in the streets will be done away with. The flushers are mounted on a heavy wagon truck painted a dark red, while the tank is a yellow. Each tank has a capacity of 750 gallons of water and the flushing is done from pipes under the tanks in the middle of each side. At the rear is located a ten-horsepower gasoline engine that works on the centrifugal system and pumps the water. Under the engine is the intake pipe. The flusher will take five minutes to empty when working at capacity and in the general run of work will have to be refilled four times an hour. The tank can be refilled in a few minutes. One of the Studebaker demonstrators, is in the city explaining the use of the machines. Similar Studebaker flushers are in use in Grand Rapids, Jackson and Muskegon, Mich., and Philadelphia has eleven of the machines.

### **Consider Incinerating Plant.**

Sheboygan, Wis.—The board of public works is considering installing an incinerating plant or a chemical destroying plant. The city has been dumping garbage on the De Land lake front park recently donated to the city, but residents complain a huge colony of rats has grown up there.

### **City Must Pay for Sprinkling.**

St. Paul, Minn.—St. Paul will be asked to pay \$26,250 next year for water for sprinkling the streets. This will be in addition to about \$55,000 that will go to the water department from the city treasury for fire protection. It is the first time in the history of the city that it has been obliged to pay for water for the sprinkling of the streets. The charter provides that the city shall pay the water department for all the water which it uses.

## **RAPID TRANSIT**

### **Superior Wins Street Car Fight.**

Superior, Wis.—Judge Ray Stevens of the Circuit Court for Dane County has handed down a decision upholding the railroad commission of Wisconsin in ordering the Duluth Street Railway Company to sell six tickets for twenty-five cents on its Superior lines. The injunction secured by the traction company restraining the commission from enforcing its decision was dissolved, and the company was ordered to redeem the coupons which have been issued in lieu of the sixth fare since the decision was first made, and pending the settlement of the case in the courts. Attorney W. R. Foley, counsel for the traction company in Superior, stated that the company would within the ten-day period file notice of an appeal to the Supreme Court of Wisconsin. The filing of this appeal will have the effect of continuing the injunction in effect so that the coupons cannot be redeemed until the Supreme court has passed on the case. The claim of the company that the franchise granted by the city is a contract granting it the right to charge a five-cent fare which cannot be revoked by the railroad commission is not held to be valid argument by the court. Judge Stevens cites the ruling of the Supreme Court in the Milwaukee case and adds that "The wording of the Superior franchise more clearly indicates that the provision as to a five-cent fare is merely a limitation on the amount of the fare that may be charged than does the language that was under consideration in the Milwaukee case." The action for reduced street car fares in Superior was originally commenced for the Superior Commercial Club by Attorney Louis Hanitch. After the hearing before the railroad commission the company was ordered to sell six fares for twenty-five cents. The company then secured a temporary injunction restraining the commission from enforcing the order. On attempting to have this injunction made permanent the company was de-

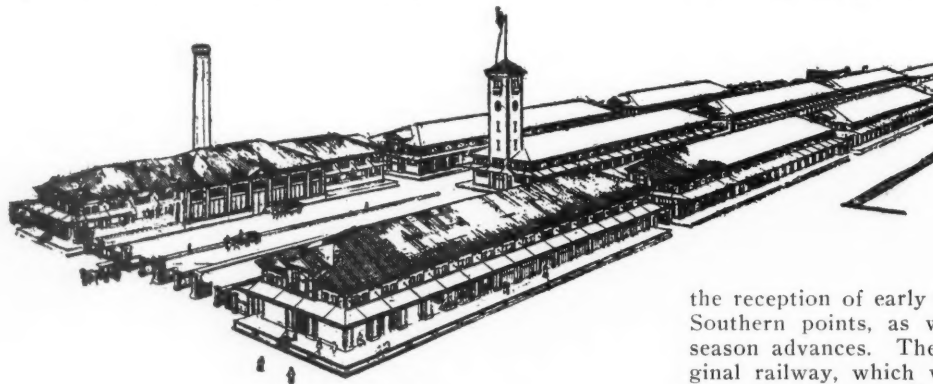
feated in both the Dane county circuit court and the state supreme court. Next the company brought action to have the decision reversed on the ground that it was unreasonable in that it violated the franchise provisions, and reduced the company's earning capacity in an unreasonable manner.

#### Portland, Ore., Awards Franchise.

Portland, Ore.—The City Council has passed an ordinance granting to the Portland & Oregon City Railway Company a franchise to construct and operate an electric railroad along certain streets. The provision that the city shall have the right to require the company to move its tracks from one street to another if traffic conditions in future years necessitate may not be acceptable to President Stephen Carver, as he pleaded that this condition be not imposed in the franchise, although in such case the city will be required to bear a proper portion of the cost of making a change from one street to another. The grant is to run for 25 years and is intended to take the place of the franchise voted by the Council some time ago for the privilege of using East Seventeenth street. That franchise is now in suspension until a referendum vote of the people can be taken on it. The company will be required to sell six fares for 25 cents and the city's yearly compensation will be 5 cents a linear foot of track. The city reserves the right to take over the company's lines in the city without having to acquire the entire system, if desired at the expiration of 25 years.

#### Toledo Votes to Buy Street Car System.

Toledo, O.—Municipal ownership of street railways and other public utilities was made possible when voters at a special election approved the ordinance authorizing an \$8,000,000 bond issue for this purpose by a majority of 1,188. Total vote was 10,597 for, 9,409 against. Following an appraisalment of the car lines and the various other utilities under the control of the Toledo Railways and Light company, Toledo may take over the above plants and have them run under city control.



BROOKLYN'S PROPOSED TERMINAL MARKETS.

#### Des Moines Council Refuses Franchise.

Des Moines, Ia.—The city council has voted unanimously to reject the proposed street car franchise on the grounds that its present terms are unsatisfactory. This action was taken after President Schmidt stated clearly that on the matter of capitalization he was not ready to change the figures named in the proposed franchise. He said that all changes had been made that the company is willing to make but that on capitalization there need be no further discussion for it would remain \$5,400,000 as given in the proposed franchise. After an attempt by Councilman Myerly to place the capitalization at \$4,762,500 had failed he substituted a motion which provides that the city will not accept a franchise in which the capitalization exceeds \$4,762,500 and which provides that the fare shall never exceed six tickets for 25 cents. To get the proper figure both the mayor and Mr. Myerly think an expert should be hired to get the value of the property and add a sufficient sum to be fair to the company.

## MISCELLANEOUS

#### To Choose Experts for Terminal Problems.

New York, N. Y.—Mayor Mitchel has announced the appointment of an Advisory Committee to confer with the Terminal Committee of the Board of Estimate on plans for port developments: Louis E. Pierson, E. H. Outerbridge, P. A. S. Franklin, H. B. Walker, Ralph Peters, F. L. Stuart, P. J. Flynn, Charles D. Barry, Chester B. Lawrence, G. W. Bowring, Fred B. Dalzell, and Frank C. Munson. The Mayor requested this Advisory Committee to take up its work Sept. 15.

"Up to the present time," the Mayor says in a letter to the Merchants' Association and the Chamber of Commerce, "the city has developed its port and terminal plan at unrelated points in the harbor, dealing with problems as they arose, and endeavoring, subject to financial limitations, to satisfy the requirements of commerce where they were found to be most pressing. Early in the present administration your association drew to my attention the desirability of formulating a comprehensive port and terminal plan, under and pursuant to which future improvements of our harbor might proceed in an orderly and logical manner. To this end you suggested the appointment of a committee of citizens and engineers, vested with power to formulate and present to the Board of Estimate such a plan."

#### Plan Large Terminal Markets.

Brooklyn, N. Y.—Considering the approach of the population of Brooklyn to the 2,000,000 mark the city and borough officials are considering the establishing of universal markets for the South Brooklyn, Greenpoint and Long Island City sections, where products could be received and shipped, making this the greatest distributing point for food supplies on the Atlantic coast. The present principal source of food distribution is not adaptable to meet the growing needs. A plot of fifteen acres has already been purchased for a market site. The engineer's office of the Bureau of Public Buildings has developed a plan of a market at this site, and with some modifications

to suit conditions, can be utilized elsewhere through the borough. The salient points of the new market are the reception of food products, both by rail and water, accessibility to markets by retail dealers, adaptability of buildings for market purposes, with sanitary surroundings and convenient approach. The position will permit of

the reception of early fruits and vegetables by water from Southern points, as well as those farther north, as the season advances. The market is on the line of the marginal railway, which will have railroad float accommodations. In this way, food products can be received by rail from all sections of the country. The question of milk supply alone is an important factor in the plan to universal markets for this borough. All the double carting would be avoided, so the milk could be conveyed on railroad floats to the dock and distributed from this point to the entire section within the area covered by this market. To complete this Eighth Ward Market it is estimated that an appropriation of \$2,000,000 will be required. Several other markets are being proposed for other sections. The plans and specification for the Long Island City Market provide for the building of a handsome and commodious structure to cover ten or twelve acres and to cost between \$4,000,000 and \$5,000,000, with ample platforms for loading and unloading from railroad trains and farmers' trucks and grocers' wagons. There will be ample facilities also for handling fruits and other products from California, and the west coast of Central and South America by the Panama Canal and from the West Indies and Gulf and South Atlantic ports. The plans provide for a large refrigerating plant similar to the one in the plans of the Eighth Ward Market.



**Plan "Carnival of Safety."**

Philadelphia, Pa.—Preliminary plans for the staging and presentation of the municipal display which will be one of the features in the "Carnival of Safety" to be held in Convention Hall in conjunction with the meetings of the International Congress on Home Education next September were perfected by the committee in charge of the display at a meeting held in the office of Mayor Blankenburg in City Hall. Devices which are employed by the municipality in protecting the general public, including fire apparatus and other appliances, will be included in the exhibit. Those in charge of the carnival have allotted 1,200 square feet of floor space to the city for its demonstration.

**To Beautify Paris, Tex.**

Paris, Tex.—W. H. Dunn, the city planner of Kansas City, Mo., has been spending a few days in Paris on invitation of Mayor McCuiston, with the view to suggesting "city beautiful" plans. After he had gone over the grounds the mayor was authorized by the council to enter into contract with him to prepare plans for beautifying the city. At a meeting of citizens and property owners at commercial headquarters Mr. Dunn outlined a plan which they recommended as feasible and desirable and pledged themselves to use their influence to put it into effect. The plan is for a circular boulevard, fifteen to twenty miles in length, to encircle the city, reaching from the Gordan Country Club to the East Side water station, northeast beyond the fair grounds and northwest to the original county seat of Lamar County. Two unsightly branches, one running through the southeast and the other through the southwest part of town, are to be converted into sunken garden parkways. Other proposed features are a park adjacent to the old cemetery; beautification of the public square as a park, without a building in it, and acquisition of a market square near the business district; gradual centralization of the wholesale district in reach of railroad spurs; a viaduct or subway across or under the railroad tracks; parks at various points on the boulevard and a civic center in the neighborhood of the postoffice and high school. The plans will be elastic, permitting such changes as appear necessary as the work proceeds.

**Fee System for Signs.**

Salt Lake City, Utah.—Two new ordinances regulating the maintenance of electric signs and awnings were passed by the city commission. The new ordinances do away with the old bond system, under which merchants were required to furnish bonds and pay premiums on them. Under the new system an inspection fee will be charged for each sign and awning and these fees will form a fund for protection of the city in case of accident. The cost to the merchant will be less than the premium on bonds. The fees to be charged on signs are: Permit for erection, \$3; inspection, 10 cents a square foot for first thirty feet, 8 cents for next thirty feet and 5 cents for each additional foot. The fees for awnings are: Erection, \$2; inspection, 12 cents a linear foot for first twenty-five feet, 8 cents a foot for next twenty-five feet and 5 cents a foot for each additional foot.

**Boulder Plans City Beautiful.**

Boulder, Colo.—Plans for extensive civic improvements are now well under way. The city council and the Boulder Improvement Association are co-operating with a view to beautifying Boulder Creek and paving the main streets of the city. Frederick Law Olmsted of Boston has prepared tentative plans for the improvement of the creek and it was decided today by city officials and officers of the improvement association to have a topographical map of the creek and surrounding territory made to be sent to Olmsted so that he may complete his plans. Bids have been called for for the paving of a section of Pearl street in the center of the city. This work will also be carried out in accordance with the Olmsted recommendations. The advisability of bringing C. V. Seastone, associate of Prof. Daniel W. Mead of the University of Wisconsin, to Boulder to determine whether the city has sufficient water to maintain a municipal electric light plant through all seasons and through all ordinary droughts is also being considered by the council.

**LEGAL NEWS****A Summary and Notes of Recent Decisions—  
Rulings of Interest to Municipalities****Eminent Domain—Proceedings—Public Necessity—Proof.**

City of Spokane v. Merriam et al.—Where city ordinances providing for the condemnation of land for park purposes declared that the property sought to be taken was necessary for such purposes, and neither the truth nor good faith of such declaration was attacked for fraud, and it was further shown that the land was required to connect two other tracts which had been donated to the city for park purposes, and which could only be retained by securing the property sought to be condemned, and that the committee appointed by the city council had carefully investigated and reported to the council recommending that the request of the park board for condemnation be granted, the proof was sufficient to establish a prima facie case of public necessity.—Supreme Court of Washington, 141 P. R., 358.

**Bond Issue—Validity—Incurring Indebtedness.**

City of Venice v. Lawrence.—Where a notice of election to authorize a bond issue specified that the election was to vote bonds in the sum of \$20,000 to construct an outfall sewer, the estimated cost of which was \$20,000, it sufficiently stated that it was proposed to "incur an indebtedness" of that sum for such purpose.—District Court of Appeal, Second District, California, 141 P. R., 406.

**Contracts—Implied Contracts.**

Worrel Mfg. Co. v. City of Ashland.—A city was not liable on an implied contract for the value of insect exterminator purchased for it by the city clerk, who acted without authority, because it was accepted and used by the city, where the general council, which alone had power to bind the city, promptly rejected the bill; since it is better to require those furnishing supplies to, or rendering services for, a city to see that their contracts are made by authorized persons than to permit unauthorized agents to impose unlimited liability, on the city.—Court of Appeals of Kentucky, 167 S. W. R., 922.

**Public Contracts—Rights of Bidder—Competition.**

Armitage v. Mayor and Common Council of City of Newark.—One who is the lowest bidder under an advertised competition acquires thereby a status that entitles him to a hearing before a valid contract can be awarded to somebody else. If the public body decides to change the terms of the advertised competition, it has the right to reject the bids received thereunder and to advertise for new ones, but it cannot award a valid contract under the advertised competition to one who was not the lowest bidder. There is no competition among bidders for a public work as to the price at which it will be done unless such work in all its essential particulars is the same for all bidders. If therefore the length of time required to do the work is to enter into the estimate, it should be the same for all bidders, since if each bidder determines this for himself no two bids will be on the same basis, which is the very essence of competition.—Supreme Court of New Jersey, 90 A. R., 1035.

**City Officer—Contract of Employment—Termination.**

Dingley v. City of Bath.—Where plaintiff was validly employed for a specified term as city liquor agent, with authority to dispense liquor under existing laws, but pending his term the statute authorizing cities to maintain dispensaries was repealed and plaintiff's employment became unlawful, his contract was thereby terminated and he could not recover salary from the city for the balance of his term.—Supreme Court of Maine, 90 A. R., 972.

**Bonds—Duty of Purchaser.**

Highway Commission of Franklin Tp. v. Malone & Co.—The purchaser of township bonds under a contract is bound to look at the provisions of the act securing the payment of interest, and is charged with knowledge of the provisions thereof and purchases accordingly.—Supreme Court of North Carolina, 81 S. E. R. 1009.

## NEWS OF THE SOCIETIES

### Calendar of Meetings.

Aug. 10-15.  
**MASSACHUSETTS STATE PERMANENT FIREMEN'S ASSOCIATION.**—Annual Convention, Lynn, Mass.  
 Aug. 18, 19, 20.  
**FIREMEN'S ASSOCIATION OF THE STATE OF NEW YORK.**—Geneva, N. Y.  
 Sept. 1.  
**PACIFIC COAST ASSOCIATION OF FIRE CHIEFS.**—Annual Meeting, Vancouver, B. C. Exhibition of apparatus, August 28, San Francisco.  
 Sept. 2-4.  
**NATIONAL ELECTRIC LIGHT ASSOCIATION.** New England Section. Annual Convention, Narragansett Pier, R. I. Chairman Entertainment Committee, E. A. Barrows.  
 Sept. 9, 10, 11.  
**NATIONAL PAVING BRICK MANUFACTURERS' ASSOCIATION.**—Eleventh Annual Convention, Buffalo, N. Y. Will P. Blair, B. of L. E. Bldg., Cleveland, O., Secretary. D. H. MacDonald, Assistant Secretary.  
 Sept. 9-11.  
**NEW ENGLAND WATER WORKS ASSOCIATION.**—Annual Convention, Boston, Mass. Secretary, Willard Kent, Narragansett Pier, R. I.  
 Sept. 15-18.  
**INTERNATIONAL ASSOCIATION OF MUNICIPAL ELECTRICIANS.**—Annual Convention, Atlantic City, N. J. Secretary, C. W. Pyke, Electrical Bureau, Philadelphia, Pa.  
 Sept. 21-25.  
**ILLUMINATING ENGINEERING SOCIETY.**—Eighth Annual Convention, Cleveland, Ohio. Assistant Secretary, Joseph Langan, 29 West 39th street, New York City.  
 Oct. 6-9.  
**AMERICAN SOCIETY OF MUNICIPAL IMPROVEMENTS.**—Annual Convention, Boston, Mass. Secretary, Charles Carroll Brown, Indianapolis, Ind.  
 Oct. 20-23.  
**INTERNATIONAL ASSOCIATION OF FIRE ENGINEERS.**—Annual Convention, Grunewald Hotel, New Orleans, La. Secretary, Mr. McFall, Roanoke, Va.  
 Oct. 21-23.  
**ALABAMA GOOD ROADS ASSOCIATION.**—Nineteenth Annual Convention, Montgomery, Ala. Secretary, J. A. Rountree, 1021 Brown Marx Bldg., Birmingham, Ala.  
 Oct. 28-31.  
**NORTHWESTERN ROADS CONGRESS.**—Milwaukee, Wis. Secretary, J. P. Keenan, Milwaukee.  
 Nov. 9-13.  
**FOURTH AMERICAN ROAD CONGRESS.**—American Highway Assoc. and American Automobile Assoc., Atlanta, Ga. Secretary, J. S. Pennybacker, Colorado Building, Washington, D. C.  
 Nov. 18-20.  
**WASHINGTON STATE GOOD ROADS ASSOCIATION.**—Spokane, Wash. Secretary, M. D. Lechey, Alaska Building, Seattle, Wash.  
 Dec. 14-17.  
**AMERICAN ROAD BUILDERS' ASSOCIATION.**—11th Annual Convention; 5th Annual Good Roads Congress, and 6th Annual Exhibition of Machinery and Materials, International Amphitheatre, Chicago, Ill. Secretary, E. L. Powers, 150 Nassau st., New York, N. Y.  
 Feb. 10-17, 1915.  
**EIGHTH CHICAGO CEMENT SHOW.**—Coliseum, Chicago, Ill. Cement Products Exhibition Co., J. P. Beck, General Manager, 208 S. La Salle Street, Chicago, Ill.

### American Road Congress.

The government exhibit which will be a feature of the Fourth American Road Congress in Atlanta, Georgia, during the week of November 9, will include a remarkable series of models showing every type of road construction from the military roads of Imperial Rome down to the most modern types of market road and city boulevard. Reproductions of the roads built by the French Bourbons, by Napoleon, as well as the early specimens of macadam road built by John L. Macadam will make the series historically complete. This exhibit, which is now being prepared by the U. S. Office of Public Roads, will also include a dynamometer equipment, by means of which the exact pull required on every type of road

surface can be shown with mathematical accuracy.

According to Mr. Charles P. Light, business manager of the exposition, to be held in connection with the congress, many of the states are arranging for educational exhibits affording full information concerning roads and the materials of construction. Mr. Light states that although the congress is nearly four months off, reservations have already been made for the display of road machinery, engineering instruments and materials of construction, sufficient to fill completely the auditorium, as well as an additional temporary structure which will occupy the entire street space extending for a city block and two-thirds of the available space in a viaduct having a length of two city blocks.

The railroads have granted a remarkably low rate, which is expected to swell the attendance by several thousands.

State highway officials from fully three-fourths of the states, which have state highway departments, will meet to discuss questions of mutual interest at the Fourth American Road Congress, to be held in Atlanta during the week of Nov. 9. State Highway Engineer Fletcher of California, who is a director of the American Highway Association, the parent organization in the meeting, has been elected president of the congress and will preside at the opening session. State Highway Commissioner Carlisle of New York is Chairman of the program committee and Director Logan Waller Page of the U. S. Office of Public Roads, will take a prominent part in the proceedings, as president of the American Highway Association. Among the most important subjects to be discussed will be systematic road management, involving the organization of working forces and the methods of reporting and recording work, which will be presented by Hon. Charles J. Bennett, state highway commissioner of Connecticut. State Highway Engineer Keller, of Alabama, will deal with the subject of engineering supervision, pointing out the conditions under which technical skill and practical experience are essential in the construction of roads and bridges.

Other prominent highway engineers and state officials from all sections of the country will deal with the various phases of construction and maintenance of all types of roads, including concrete, brick, macadam, gravel, sand-clay, and plain earth roads, as well as the use of the various asphalts, tars and asphaltic oils and other special dust preventives and road binders. A new form of construction, which is now attracting considerable attention among engineers, known as the sand-oil method, by which roads are constructed through the mixing of asphaltic oil and sand, will be quite generally discussed. This

type of road is in successful use in the Cape Cod Region of Massachusetts and in the vicinity of Palm Beach, Florida. The maintenance question has been growing in importance with the more general use of the automobile from year to year and will be given a prominent place on the program.

Fairfax Harrison, president, Southern Railway, will explain the close relationship between the railroads and wagon road and will point out defective lines of co-operation. Very important special sessions will be held by the American Bar Association, the National Civil Service Reform League, and other great organizations dealing with special phases of the question.

Forty-seven national, state and interstate organizations have joined in the official call. Arrangements for the congress are going forward rapidly in the offices of the American Highway Association which are located in the Colorado Building, Washington, D. C.

### Engineers' and Surveyors' Association of South Carolina.

At a meeting of the civil engineers from the various parts of the state, held at the Isle of Palms Hotel on July 28, an organization was formed, which was officially called "The Engineers' and Surveyors' Association of South Carolina." The following were elected officers of the association: President, Reid Whitford, engineer of the sanitary and drainage commission of Charleston County; vice-president, N. G. Walker, of Rock Hill; secretary, John McCrady, of McCrady Brothers & Cheeves, of Charleston; treasurer, F. J. Watson, of Cheraw.

A committee was named by the association for the purpose of perfecting a constitution and by-laws. Messrs. Charles C. Wilson, of Columbia, and Ernest V. Richards, of Bennettsville, were appointed honorary vice-presidents.

The first official act of the association was to place itself on record, by a unanimous vote, as approving a system of State highways embracing about 1,000 lineal miles in the lower half of the coastal plains of the state, running through Atlanta, Columbia and Washington. The highway proposition has been developed and was presented by Mr. Reid Whitford.

Engineers and surveyors all over South Carolina are invited to become members. Full information will be given upon application to John McCrady, of McCrady Brothers & Cheeves, Inc., People's Office Building, Charleston.

### Illuminating Engineering Society.

The Hollenden Hotel, in Cleveland, O., according to a notice issued by Mr. A. G. Sommerell, of the National Carbon Co., will be the headquarters for the annual convention, to be held September 21 to 25.

Many conveniences are afforded by this hotel, which make it ideal for convention purposes. Rates are very reasonable. Persons desiring reservations should write directly to the hotel.



## NEW APPLIANCES

### ECONOMY STREET FLUSHER. With Special Feature of Controlled Swinging Nozzle, Waterless Air- Chamber, Automatic Shut-Off Valve for Conserving Pressure.

Street flushing has become a very important part of street cleaning service, and the cities are rapidly adding flushing machines to their equipment. Coffeyville, Kan., has recently received an "Economy" Street Flusher from the Economy Street Flusher Co.,

Three special and exclusive features are held to make the "Economy" Street Flusher as efficient as possible. A swinging nozzle allows of flushing gutters and cleaning them in awkward places which might be inaccessible with a stationary nozzle. The nozzle is set in any desired position by a swing joint which is operated by the driver right from his seat. The efficiency of the flusher would be reduced if the air chamber became more or less filled with water. This is pre-

### Waycleanse Street Cleaning.

The Waycleanse Company of Sandusky, Ohio, after spending a large amount of money in experimenting with various devices, has worked out a system of sweeping streets and removing the fine dust without the use of water. The sweeper used by the company is operated by gas-electric power, and has a separate motor for each individual part. The broom consists of fine bassine, which enables it to dislodge fine particles of dust from the pavement. The broom throws it into an air current which is created by a large suction fan, which carries it through a conduit back into the dirt box. This box is a trailer and is divided into two compartments, one being used as an expansion chamber in which the heavier particles are deposited. The light dust which will be carried by the air goes into the dust collector, which is composed of a series of cloth pockets revolving on a drum, which pockets are shaken automatically and deposit the fine dust in a dead air chamber. The air passes through the cloth of the pockets and is again filtered through a series of screens packed with a vegetable matter to free the air entirely from dust. When the dust box has received its load it is detached and taken to the dump by a team of horses and replaced by an empty box.

It is said that the machine adapts itself to all kinds of pavements, whether smooth or uneven. It is provided with a foot-board to carry a helper who, when it is working on very uneven pavements or passes holes too deep to be cleaned by the revolving broom, sweeps out these depressions, picks up the dirt and deposits it in a receptacle provided for this purpose at the front end of the dirt box.

In one test of the machine made early this spring on an asphalt block pavement, which contained the accumulations of the entire winter, the machine removed an average of 18 cubic yards of dirt to the mile of 30-

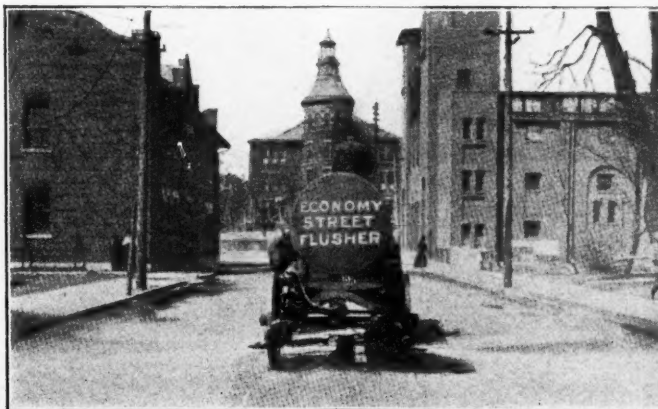


THE WAYCLEANSE STREET CLEANER AT WORK.

Council Bluffs, Iowa. This flushing machine is claimed to differ from all others in construction and in important special patented features. The tank is made of quarter-inch steel guaranteed to hold any pressure up to 150 pounds. This insures better wear and longer freedom from defects and leaks. The tank is 12 feet long by 42 inches in diameter and divided into two compartments—seven feet for water and five for air. The large air chamber is claimed to insure good working pressure throughout the entire load.

vented in the "Economy" flusher by means of an automatic drain pipe and suction valve. In order to keep the air pressure from wasting an inside float valve which seats itself on the end of the outlet pipe, and automatically shuts off when the tank is nearly empty, having a tight water seal.

The flusher may also be used as a sprinkler and will sprinkle a 60-foot street. There are a number of these "Economy" flushers in successful use in various cities, three operating in Kansas City, and these were investigated by the Coffeyville officials.



Four Nozzles Simultaneously Flushing.

Swinging Nozzle Cleaning Gutter.

STREET FLUSHING WITH THE ECONOMY FLUSHER.

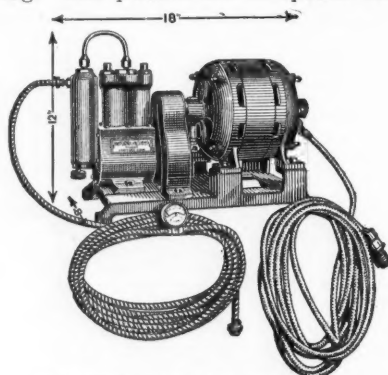
foot pavement. The expansion chamber in the dirt box retained 4 yards of heavy material, mostly sand, which averaged 2,040 pounds to the cubic yard, and the dead air chamber received about 1 cubic yard of dust as fine as flour. In another test on a brick pavement in a business section, about one-half mile long and 40 feet wide, about one-third of which was a sand filled pavement very uneven and full of holes, about  $4\frac{1}{2}$  cubic yards were removed on the first sweeping, and two days later the amount removed was  $1\frac{3}{4}$  yards; while one day afterward  $\frac{3}{4}$  of a yard was removed from this half mile. The first sweeping collected six times as much heavy material in the dead air chamber as there was fine dust; the second sweeping about eight times as much, and a third sweeping about ten times. After the third sweeping the pavement was said to be so free from dust that one's hand would not be soiled by drawing it over the pavement.

The company proposes to use machines of various sizes; providing small ones, about the size of an ordinary truck, for congested districts during the daytime, assisted by hand labor for sections which the traffic will not permit the machines to reach, but using the larger sweeper during the night. The company also has arranged for the use of a squeegee machine in place of the broom, the contrivance used consisting of a series of adjustable shovels having a flexible shoe which enables the shovels to adjust themselves to the irregularities of the pavement. The company does not sell the machines, but proposes to operate them themselves with experienced men under street cleaning contracts.

#### **GARAGE PUMPS. For Pumping Tires and Compressed Air Cleaning.**

"Master" Garage Pumps are electric-driven air compressors especially designed for garage service and their general utility and time-saving qualities should make them very useful in fire stations and municipal garages. In-

stead of time-consuming hand-pumping or risk of flat tires at an inopportune moment, the electric-driven pump is claimed to inflate the largest size tire in less than three minutes. These pumps are made in two models, model "P" consisting of a two-cylinder pump mounted on a frame and driven by a small General Electric motor—either a. c. or d. c. With each outfit is furnished 20 feet of best reinforced rubber air hose with pressure gauge attached and 20 feet of lamp cord with plug. The pistons are of special steel



MASTER GARAGE PUMP "P."

carefully hardened and ground to exact size, and no rubber or leather packing rings are used in the construction. This insures the delivery of pure air, free from oil. This equipment is claimed to be able to inflate completely a 37 x 5 tire to 90 pounds' pressure in less than three minutes. There is no installation expense, the pump being merely put on the lamp circuit. No tank is required since the pump delivers pure air in a steady stream. Besides being labor and time-saving, the automatic pump gives constant air pressure at any predetermined point, which is very difficult to obtain with the hand pump. This helps to minimize the tire wear. A small nozzle is furnished to fit to the machine so that the outfit may be used as a compressed-air cleaner for blowing dust out of inaccessible places in the truck. Various accessory connections may also be obtained such as a benzine-spraying outfit for removing dried

grease or oil from the machines. The outfit may be obtained mounted to a metal truck with wheels and handle.

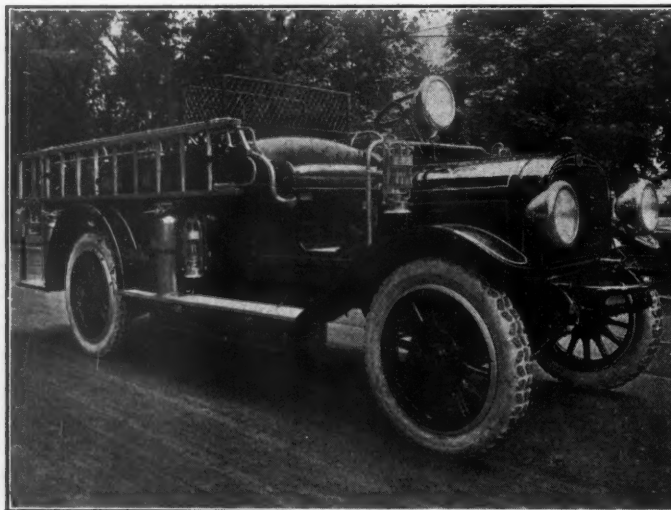
Model "G" is designed for heavier service where the demand is for a tire pump of unlimited capacity. This model is claimed to have great strength and durability. It is fitted with a storage tank of 2,300 cubic inches capacity, which may be pumped up to a pressure of 200 pounds per square inch in less than ten minutes. If necessary, the outfit may be wheeled on to a repair car and taken out to inflate four 37 x 5 tires to 90 pounds pressure without starting the pump. The regular equipment is similar to that of model "P."

These pumps are made by the Hartford Machine Screw Co., Hartford, Conn.

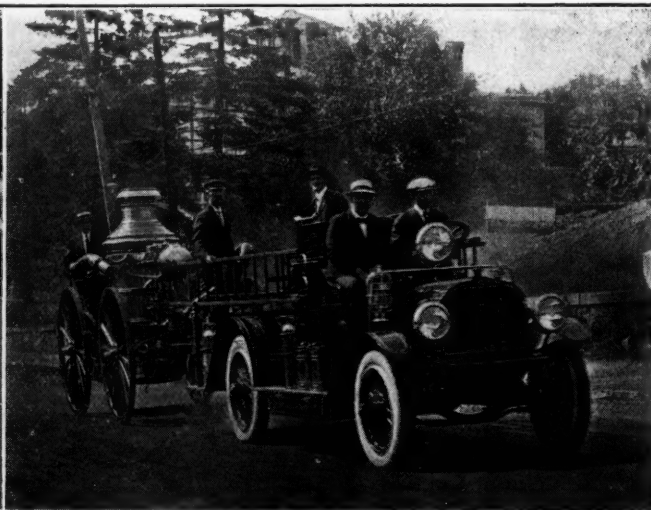
#### **MOTOR FIRE APPARATUS. Recently Delivered to the Westerley, R. I., Fire Department.**

The Fire District of Westerley, R. I., has just received the second of the two motor fire trucks ordered last spring. The first piece of apparatus was a combination chemical and hose wagon fitted with the regular equipment of axes, bars, lanterns, exterior ladders, roof ladders, chemical hose basket, high-pressure extinguisher of the shut-off type, plaster hooks, nozzles and all other necessary apparatus. This was only adapted from an old hose body to a new motor tractor part. This wagon is shown towing a large steamer up a ten per cent grade at a ten-mile an hour clip. The second apparatus was entirely new and was a hose wagon with full equipment. It was brought by Chief Samuel G. Cottrell from Middleboro, Mass., to Westerley, 118 miles in about six hours.

The truck has a 45-horsepower four-cylinder motor, T head, and can develop any speed up to 40 miles per hour. The wheels are tired with United States Nobby Tread fire department type tires. The truck is equipped with Gray and Davis' electric lights, a Sireno Electric horn and other accessories. The machine is painted Montauk red and decorated with gold and all the metal parts are heavily nicked.



Automobile Hose Wagon.



Motorized Chemical and Hose Wagon.

NEW AUTO FIRE APPARATUS FOR WESTERLEY, R. I.



The fire-fighting equipment consists of 2,000 feet of hose, a 30-foot rapid rope hoist extension ladder, a 12-foot roof ladder and four three-gallon fire extinguishers of the Badger high pressure shut-off type.

Some of the detailed specifications of this "Model F" type truck are:

**Motor Teetor**—Four cylinder, four cycle, vertical type, water cooled, Tee head. Bore  $4\frac{1}{2}$  inch, stroke 5 inch. Cylinders cast blocked with 2-inch valves in the clear.

**Ignition**—High tension Bosch Magneto with variable spark.

**Lubrication**—Patented Teetor splashed system. This consists of two overflow oil basins located in the lower half of crank case. Into the bottom of these basins are drilled holes of sufficient size to admit given quantity of oil. Lower end of connecting rods passing thro' this keeps a given amount in circulation and directing excess to oil reservoir.

**Cooling**—The cooling of the motor is effected by means of a centrifugal water pump of special design, the body of which is cast integral with the crank case.

**Steering Gear**—Placed on left-hand side of car.

**Transmission**—Brown-Lipe in unit with Sheldon Jack shaft. Three speeds forward and reverse.

**Brakes**—Both on rear wheels with self-intensifying internal expanding emergency brake and a rap-up type external brake which holds the same reversed as when moving forward. Service brake  $2\frac{1}{2}$ -inch x 14-inch diameter, emergency brake  $2\frac{1}{2}$ -inch x 14-inch diameter. All brakes lined with Reybestos.

**Rear Axle**—Sheldon type.

**Front Axle**—Sheldon "I" beam.

**Springs**—Semi-Elliptic front and rear, with bronze bushed eyes, front spring 47 inches long,  $2\frac{1}{2}$  inches wide, rear spring 47 inches long,  $2\frac{1}{2}$  inches wide.

**Wheel Base**—Approximately 130 inches. Triad 56 inches.

**Hose Body**—8 feet 9 inches long and 3 feet 8 inches wide. Capacity of hose body 1,500 feet of  $2\frac{1}{2}$ -inch hose.

**Lanterns**—Four heavy fire department lanterns with holders.

**Lighting System**—Gray & Davis electric head lights and tail lights; also one swivel search light.

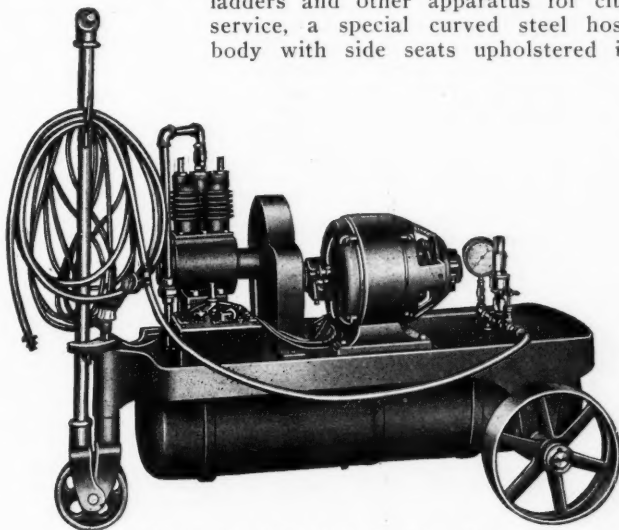
**Tools**—A complete set of tools, including jack and pump, 4 Badger three gallon chemical tanks with shut-off nozzles, 1 pick head axe, 1 plaster hook, 1 crow bar.

These trucks were made by the Maxim Motor Company, Wareham street, Middleboro, Mass. The same makers have just delivered a large combination 90 H. P. 6-cylinder machine to Ansonia, Conn., and a brush fire wagon with convertible body for hose to Nassau, N. H. A tank combination will soon be delivered to Tiverton, R. I.

## A SPECIAL AUTO COMBINATION

Stroudsburg, Pa., has ordered a specially designed truck for its fire department. The truck is driven by a four-cylinder  $5\frac{3}{4}$  x 6 motor which develops 80 brake horsepower and 53 S. A. E. horsepower. This motor is specially designed for fire department service to give flexibility, strength and speed and the construction is particularly sturdy. The crank shaft is of large diameter and has five large main bearing surfaces giving a very liberal total bearing surface. The cam shaft is supported by three large bronze bearings. The body is mounted on a specially heat-treated chrome nickel steel frame, designed for fire department service. The car is tired with Kelly-Springfield tires, 38 x 5 single solid front and 38 x 4 dual solid rear.

Besides the regular equipment of ladders and other apparatus for city service, a special curved steel hose body with side seats upholstered in



MASTER GARAGE PUMP "G."

leather is included. The seats are movable, giving access to valuable locker space underneath. The hose body has a capacity for 1,200 feet of  $2\frac{1}{2}$ -inch cotton-lined fire hose and is equipped with a nickel-plated hand-rail. The chemical equipment consists of two forty-gallon Kanawha Air Pressure Chemical Tanks.

The machine, which is painted white with nickel-plated fittings and red running gears, will be exhibited at the Firemen's Convention at Harrisburg, Pa., shortly. It was made by James Boyd & Brother, 25th and Wharton street, Philadelphia, Pa.

The Stroudsburg combination is one of the first cars of its type, yet the illustration is taken from a blue-print of the design.

## INDUSTRIAL NEWS

**Cast Iron Pipe.**—Chicago—This city has awarded contract for from 2,500 to 5,000 tons of pipe and at Toledo 6,000 tons have been brought. Small orders totalled about 2,000 tons. Quotations: 4-inch, \$26; 6-12-inch, \$24; 16-inch and up, \$23.50. New York—This city opened bids for 900 tons and Worcester, Mass., for 650 tons. Quotations: 6-inch, \$20.50—\$21 per net ton.

**Lead.**—New York, \$3.90; St. Louis, \$3.725.

**A \$2,000,000 Brick Merger.**—The largest paving brick, fire and building brick, coal and molding sand industries in Zanesville, Ohio, have merged into a \$2,000,000 corporation. The merger will be known as the Burton-Townsend Company and will combine the T. B. Townsend Brick & Contracting Co., the L. K. Brown Sand Co., the Monitor Coal Co. and the Northern Coal Co. The undeveloped property of these companies is estimated to be worth \$30,000,000. The officers of the new company are R. C. Burton, of the Townsend firm, president; L. K. Brown, vice-president; C. A. Case, of the Monitor Coal Co., secretary and treasurer. The immediate effects of the merger will be the expenditure of \$400,000 on the Townsend plants and the quadrupling of their output.

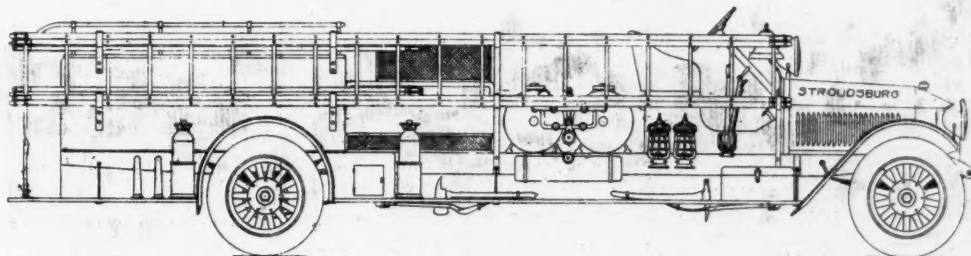
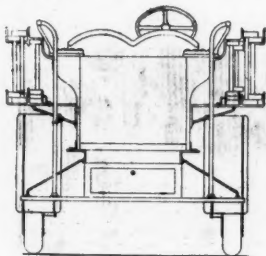
**The Union Metal Manufacturing Co., Canton, O.,** announces that Mr. Charles L. Eshelman, formerly Sales Manager of the Adams-Bagnall Electric Co., Cleveland, O., has now become vice-president and general sales manager of their firm. This company announces at the same time an addition to the plant which will more than double its output.

## PERSONALS

Olson, J. N., formerly office engineer for the J. C. Feild Engineering Company, has been appointed assistant city engineer of Denison, Tex.

Smith, Ralph, has been elected city engineer of Miami, Ariz.

Chester & Fleming, consulting engineers, of Pittsburgh, have been engaged to prepare plans for a mechanical filtration plant at Zanesville, Ohio. The members of this company are John Needels Chester and Thomas Fleming, Jr.



PLANS FOR STROUDSBURG'S NEW BOYD.

# ADVANCE CONTRACT NEWS

## ADVANCED INFORMATION BIDS ASKED FOR

## CONTRACTS AWARDED ITEMIZED PRICES

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

### BIDS ASKED FOR

| STATE                     | CITY               | REC'D UNTIL              | NATURE OF WORK  | ADDRESS INQUIRIES TO                        |
|---------------------------|--------------------|--------------------------|---|---|
| <b>STREETS AND ROADS.</b> |                    |                          |   |   |
| O.                        | Marysville         | .....1 p.m., Aug. 15.    | Grading and macadamizing 3 1/2 miles of road.   | Chas. A. Murlock, Comr.                     |
| Ill.                      | Lakeville          | .....8:15 p.m., Aug. 15. | Grading, draining hard gravel road.   | Chas. E. Russell, Supt. Hwy.                |
| Tex.                      | Corpus Christi     | .....10 a.m., Aug. 15.   | Constructing Corpus Christi causeway.   | H. E. Lutter, Co. Clk.                      |
| O.                        | Cleveland          | .....10 a.m., Aug. 15.   | Improving two roads.  | County Commissioners                        |
| Ill.                      | Lake Villa         | .....Aug. 15.            | Grading and hard gravel road, and two concrete culverts.  | Lake Villa Township Hwy. Comm.              |
| O.                        | Urichsville        | .....Aug. 15.            | Grading, curbing and paving with fire clay brick or blocks.   | Village Clerk.                              |
| W. Va.                    | New Cumberland     | .....Aug. 15.            | Paving  | Hancock Co. Comrs.                          |
| Ind.                      | Muncie             | .....10 a.m., Aug. 15.   | Cement sidewalk on one street.  | J. R. Kelly, City Clerk                     |
| O.                        | Grand View Heights | Noon, Aug. 15.           | Concrete sidewalks, curbs and gutters.  | Burgess Long, Engineer, Columbus            |
| N. Y.                     | Buffalo            | .....10 a.m., Aug. 15.   | Paving one street.  | F. G. Ward, Comr. Pub. Wks.                 |
| Ind.                      | Oaktown            | .....2 p.m., Aug. 15.    | Constructing concrete sidewalk.   | T. Huffmann, Tr. Township                   |
| S. D.                     | Clear Lake         | .....2 p.m., Aug. 15.    | Grading   | D. F. Roe, Portland Twp. Clk.               |
| Ky.                       | Lexington          | .....10 a.m., Aug. 17.   | A, B or C asphalt, brick, wood block, macadam with bituminous binder, resurfacing with sheet asphalt and concrete or limestone curbs                | C. H. Wilkerson, Comr. P. W.                |
| N. D.                     | Bismarck           | .....8 p.m., Aug. 17.    | Curbing   | R. H. Thistlewaite, City Aud.               |
| Minn.                     | St. Paul           | .....10 a.m., Aug. 17.   | Grading and improving several streets, also constructing sandstone curbing.   | A. Hohenstein, City Pur. Agt.               |
| O.                        | Cleveland Heights  | .....Aug. 17.            | Paving with brick, asphalt, asphalt macadam or asphalt block and constructing sidewalk  | Village Clk., 209 Beckman Bldg., Cleveland. |
| N. J.                     | Westfield          | .....8 p.m., Aug. 17.    | 350 lin. ft. bluestone flagging; 1,860 sq. yds. waterbound macadam; 1,100 lin. ft. concrete curb and gutter, and concrete culvert                   | A. W. Vars, Twn. Engr.                      |
| Pa.                       | Carrick            | .....8 p.m., Aug. 17.    | Grading, curbing and paving   | W. M. Donley, Boro. Engr.                   |
| Fla.                      | Tampa              | .....Aug. 17.            | Five miles grading  | Jas. Riddle, Engr., Tampa                   |
| N. J.                     | Linden             | .....2 p.m., Aug. 17.    | 9,175 lin. ft. of combination curbs & gutter, including 1,160 cu. yds. excavation, macadamizing, tar surfacing & conc. roadway with bituminous top. | J. L. Bauer, Township Engr.                 |
| Mo.                       | Kansas City        | .....Aug. 17.            | Grading and draining road   | R. T. Proctor, Engr.                        |
| Wash.                     | Seattle            | .....Aug. 17.            | Construction of Mercer Island road.   | Bd. of Co. Comrs.                           |
| N. J.                     | Bloomfield         | .....8 p.m., Aug. 17.    | Grading and paving  | Raymond F. Davis, Town Clk.                 |
| N. J.                     | Perth Amboy        | 8:30 p.m., Aug. 17.      | Asphalt block pavement.   | G. M. Adair, Street Comr.                   |
| O.                        | Napoleon           | .....1 p.m., Aug. 17.    | Road improvements   | G. E. Harman, Comr.                         |
| O.                        | Akron              | .....11 a.m., Aug. 17.   | Grading and draining and paving roads.  | Comms. Summit County.                       |
| O.                        | New Lexington      | Noon, Aug. 17.           | Grading with brick and otherwise improving street.  | T. V. Skinner, Vil. Clk.                    |
| O.                        | Portsmouth         | Noon, Aug. 17.           | Grading and culverting in two townships.  | T. C. Patterson, Co. Aud.                   |
| Ala.                      | Eutaw              | .....Aug. 17.            | Grading, draining & surfacing with chirt.   | W. S. Keller, State Hwy. Engr., Montgomery  |
| Ariz.                     | Clifton            | .....Aug. 17.            | Constructing three miles of rds. to cost about \$50,000.  | Board Supervisors                           |
| N. Y.                     | Albany             | .....1 p.m., Aug. 17.    | Constructing and repairing roads in several counties; also furnishing High Carbon Tar.  | John N. Carlisle, Comr.                     |
| N. Y.                     | Watertown          | .....Aug. 17.            | Constructing several streets in Adams, and road between Lowille and Coffey  | T. E. Reply, St. Supt. Highway Dept.        |
| N. J.                     | Elizabeth          | .....2:30 p.m., Aug. 18. | Excavation, paving gutters, sidewalks and sodding.  | Jacob L. Bauer, Co. Engr.                   |
| Ala.                      | Marion             | .....Aug. 18.            | Grading, draining and surfacing with gravel.  | W. S. Keller, State Hwy. Engr., Montgomery  |
| N. Y.                     | New York           | .....Aug. 18.            | Paving with sheet asphalt 21,010 sq. yds. with bituminous concrete, 24,250 sq. yds., and 25,650 sq. yds., and 11,160 sq. ft. flagging sidewalks     | Douglas Mathewson, Bronx Boro. President.   |
| N. J.                     | Ridgefield Park    | .....Aug. 18.            | 4,225 cu. yds. excavating, 10,872 sq. yds. Amiesite, and 4,445 lin. ft. curb  | Village Clerk.                              |
| O.                        | Columbus           | .....Aug. 18.            | Paving with brick, asphalt or treated macadam.  | Director Pub. Service.                      |
| Pa.                       | Philadelphia       | .....Aug. 18.            | Boulevard improvements  | Dept. Public Works.                         |
| O.                        | Lorraine           | .....Aug. 18.            | Macadamizing one mile, grading and macadamizing three miles   | County Commissioners.                       |
| D. C.                     | Washington         | .....2 p.m., Aug. 18.    | Sheet asphaltic concrete and asphalt block paving   | Chf. Clk. Engrg. Dept., Municipal Bldg.     |
| Conn.                     | Hartford           | .....2 p.m., Aug. 18.    | Constructing highway improvements in several countries using various material.  | C. J. Bennett, St. Hig. Comr.               |
| Pa.                       | Philadelphia       | .....Aug. 18.            | Continuing impt. of Boulevard including 490,300 yds. grad., 330,750 cu. yds. conc. & 241,500 sq. yds. bitu. pav.                                    | Dept. Public Works                          |
| Neb.                      | Loup               | Noon, Aug. 18.           | Concrete sidewalks  | Peter Rowke, City Clk.                      |
| Wis.                      | Superior           | .....2 p.m., Aug. 18.    | Grading and improving   | C. J. Morisset, Co. Hwy. Comr.              |
| Minn.                     | Duluth             | .....10 a.m., Aug. 19.   | Sandstone paving blocks, sand and gravel.   | R. Murchison, Comr. P. Wks.                 |
| Conn.                     | Hartford           | .....3 p.m., Aug. 19.    | Two-mile gravel surface.  | Board Water Comrs.                          |
| Ill.                      | Springfield        | .....11 a.m., Aug. 19.   | Construct. cement rd. in 4 counties & brick rds. in 1.  | State High. Comm.                           |
| Ky.                       | Louisville         | Noon, Aug. 19.           | Grading of sidewalks in Highland Park.  | J. P. Kinsey, Bd. Trustees.                 |
| Ill.                      | Urbana             | .....10 a.m., Aug. 19.   | 20,000 sq. yds. brick pavement.   | A. M. Banely, Jr., C. E.                    |
| Ala.                      | Centerville        | .....Aug. 19.            | Grading, draining and surfacing with chirt.   | W. S. Keller, State Hwy. Engr., Montgomery  |
| O.                        | Painesville        | Noon, Aug. 20.           | Furnishing material & labor for grad., drain. & pav. with brick, with conc. base, rd. in Willoughby Twp.  | W. Albert Davis, Secy. County Commissioners |
| Tex.                      | Sulphur Springs    | .....Aug. 20.            | 20,000 ft. concrete curb and paving to cost \$150,000   | A. D. Stivers, City Engr.                   |
| Fla.                      | Miami              | .....Aug. 20.            | Asphaltic conc., bit. asphaltic blk., vit. brick or wood blk.   | W. B. Moore, City Clerk                     |
| Mo.                       | Kansas City        | .....Aug. 20.            | Paving and macadamizing   | County Clerk                                |
| Tex.                      | Mineral Wells      | .....10 a.m., Aug. 20.   | 5,000 cubic yards road gravel.  | J. W. Brock, Co. Clk., Palo Pinto Co., Tex. |
| Ind.                      | Warsaw             | .....Aug. 21.            | One mile of Landis gravel road.   | V. D. Mock, Aud.                            |
| Ky.                       | Louisville         | .....2 p.m., Aug. 21.    | Paving alleys   | R. G. McGrath, Secy.                        |
| Tenn.                     | Pikeville          | .....1 p.m., Aug. 21.    | 40 miles of pike roads.   | Bledsoe Co. Comrs.                          |
| S. D.                     | Yankton            | .....Aug. 21.            | 8 037 lin. ft. cement curbing and 23,621 sq. yds. paving.   | Stanley H. Edmunds, City Eng                |



## BIDS ASKED FOR

| STATE  | CITY         | REC'D UNTIL       | NATURE OF WORK  | ADDRESS INQUIRIES TO                          |
|--------|--------------|-------------------|---|---|
| Wash.  | North Yakima | 2 p.m., Aug. 22   | Macadamizing two miles  | W. B. Newcombe, Co. Aud.                      |
| Mo.    | Festus       | 8 p.m., Aug. 22   | Street improvements   | J. C. Davison, City Clk.                      |
| O.     | Marion       | Noon, Aug. 22     | Resurfacing   | V. F. Garfield, Clk. Marion Co. Bd. Comrs.    |
| O.     | Findlay      | 1 p.m., Aug. 22   | Two stone roads   | Jean G. Copeland, Clk.                        |
| N. D.  | Harvey       | 2 p.m., Aug. 22   | Grading   | P. J. Egeland, Clk. Twp. Bd.                  |
| N. D.  | Williston    | 10 a.m., Aug. 24  | Road grading and bridge approaches  | M. H. Aaxen, Co. Aud.                         |
| Neb.   | Kearny       | Noon, Aug. 24     | County road construction  | J. H. Dean, Co. Clk.                          |
| Ky.    | Louisville   | 2 p.m., Aug. 24   | Vitrified block gutters and asphalt pavement; also bituminous concrete pavement and granite tube pavement | R. G. McGrath, Sec. B. P. W.                  |
| Ind.   | Milford      | 2 p.m., Aug. 24   | Pav. sts. with brick, including conc. curb & gutter   | A. J. Forbing, Town Clerk                     |
| Mo.    | Kansas City  | Aug. 24           | Grading, draining and culverts  | Co. Clerk                                     |
| Cal.   | Sacramento   | Aug. 24           | Road improvements   | Wilson R. Ellis, Secy. State High. Comm.      |
| N. J.  | Hackensack   | 2 p.m., Aug. 24   | Road improvements   | Harry A. Stewart, Clk.                        |
| Ind.   | Fort Wayne   | 10 a.m., Aug. 24  | Concrete road improvement, 5,000 ft.  | Calvin H. Brown, Aud.                         |
| N. C.  | Mooreville   | Aug. 24           | 9,000 yds. bituminous paving, concrete base and curb  | Alali Osborne, Engr., Charlotte               |
| Neb.   | Auburn       | Noon, Aug. 25     | \$3,385 road improvements   | Frank E. Black, City Clk.                     |
| Ind.   | South Bend   | 10 a.m., Aug. 25  | Paving  | Board Public Works                            |
| O.     | Smithfield   | Aug. 25           | Half mile brick road  | Co. Aud., Steubenville                        |
| D. C.  | Washington   | Aug. 25           | Cement paving, conduits & manholes  | B. Sweeney, Asst. Secy. Dept. Interior        |
| Cal.   | Sacramento   | 2 p.m., Aug. 25   | 6 1/2 miles of asphalt on conc. & 23 miles of conc. road  | State Hig. Comm                               |
| Tex.   | San Antonio  | Aug. 25           | Paving 43 streets, estimated cost \$250,000   | H. Halland, City Engineer                     |
| Minn.  | Anoka        | 2 p.m., Aug. 25   | County roads  | A. A. Caswell, Co. Aud.                       |
| Va.    | Roanoke      | Noon, Aug. 27     | Granolithic sidewalk and granite curb   | M. D. Moss, Asst. City Clk.                   |
| W. Va. | Wheeling     | Aug. 27           | Six miles of road with brick or bituminous  | Geo. Stenrod, Co. Engr.                       |
| Ind.   | Wausaw       | 10 a.m., Aug. 31  | Gravel road   | V. D. Mock, Aud.                              |
| Ind.   | Newport      | 10 a.m., Aug. 31  | Gravel road   | Roy Slater, Co. Aud.                          |
| Ind.   | South Bend   | 11 a.m., Aug. 31  | 13,200 ft. gravel road  | Clarence Sedgwick, Aud. St. Joseph Co.        |
| W. Va. | Charleston   | Sept. 1           | Paving and grading, \$32,500  | G. S. Brown, Engr.                            |
| Ore.   | Hood River   | Sept. 1           | \$75,000 state roads  | St. Hwy. Engr., Salem, Ore.                   |
| Ind.   | Danville     | 10 a.m., Sept. 8  | Road construction   | Township Comrs.                               |
| Fla.   | Arcadia      | 2 p.m., Sept. 8   | Improving roads and bridges, \$350,000  | A. L. Durrance, Clk. Court.                   |
| Ind.   | South Bend   | 11 a.m., Sept. 10 | 10,150 ft. gravel road & 63,470 ft. concrete road   | Clarence Sedgwick, St. Joseph, County Auditor |
| Ind.   | Richmond     | Sept. 12          | Construction of gravel roads  | Louis Bowman, Aud.                            |
| Ind.   | Auburn       | 10 a.m., Sept. 15 | Grading, draining and graveling   | A. W. Madden, Co. Auditor.                    |
| W. Va. | Kanawha Co.  | Sept. 15          | Improving five miles roads  | F. A. Duodett, Engr.                          |

## SEWERAGE

|       |               |                    |  |   |
|-------|---------------|--------------------|--|---|
| Ia.   | Burlington    | Aug. 15            | 2,300 ft. 8 ft. concrete sewer, to cost about \$92,000   | H. D. Vollmer, City Engr.                 |
| O.    | Kenton        | Aug. 15            | 4,000 ft. sewer pipe, 12 to 18 inches  | C. E. Hutchinson, City Engr.              |
| Wis.  | Racine        | 10 a.m., Aug. 15   | Constructing large sewer system  | Bd. Pub. Wks.                             |
| O.    | Cleveland     | Noon, Aug. 15      | Excavating for sewer   | Comr. Pur. & Supplies                     |
| Ore.  | Astoria       | Aug. 15            | 24,000 ft. 30 to 8-in. pipe sewer, costing \$15,000  | L. C. Rogers, City Engr.                  |
| O.    | Woodfield     | Aug. 15            | 3,000 ft. 8-in. tile sewer   | Mayor                                     |
| Pa.   | Meadville     | 8 p.m., Aug. 17    | Sanitary sewer   | City Engr.                                |
| Ill.  | Freeport      | 2 p.m., Aug. 15    | Sanitary sewers  | Board Local Imp.                          |
| Ky.   | Lexington     | 10 a.m., Aug. 17   | 8-inch sanitary sewers and 5-inch laterals, manholes and flush tanks                                     | City Comrs.                               |
| Ia.   | Ft. Dodge     | 2 a.m., Aug. 17    | Sanitary sewers  | W. L. Tang, City Clk.                     |
| Mont. | Anaconda      | 8 p.m., Aug. 17    | Vitrified clay pipe sewer, paving and concrete crossings and gutters                                     | M. J. Kelly, Clerk.                       |
| Ind.  | Gary          | Aug. 17            | 1,125 ft. 18-in., 1,064 15-in., 610 12-in. vit. tile sewer & 17 manholes                                 | W. J. Fulton, City Engr.                  |
| Mich. | Bay City      | 9 a.m., Aug. 17    | Ten-inch socket tile sewer   | E. E. Brohaska, Secy. Board Public Works  |
| Ore.  | Dallas        | Aug. 17            | Sewage treatment plant and intercepting sewers   | S. B. Taylor, C. E.                       |
| Pa.   | Mt. Pleasant  | 8 p.m., Aug. 17    | 950 ft. 8-inch sewer   | J. E. Criswell, Secy.                     |
| N. D. | Lidgerwood    | 6 p.m., Aug. 17    | Sanitary sewer system, septic tank and disposal plant  | F. W. Mashek, City Aud.                   |
| Neb.  | New London    | 8 p.m., Aug. 18    | Sanitary sewer system  | C. J. Thomson, City Clk.                  |
| O.    | Sandusky      | Aug. 18            | 4,000 ft. 8 to 18-inch sewer pipe  | L. A. Schultz, Surveyor.                  |
| Ind.  | South Bend    | 10 a.m., Aug. 18   | Pine sewer on Yuton Avenue   | V. G. Sweeney, Act. Clerk.                |
| Mont. | Billings      | Aug. 18            | \$18,000 sewerage work   | City Clk.                                 |
| N. C. | Durham        | 4 p.m., Aug. 18    | Constructing sewage disposal plant, consisting of Imhoff tank, and laying about one mile of 24-inch pipe | W. J. Brogden, Mayor.                     |
| N. Y. | New York      | Aug. 18            | Concrete sewers  | Douglas Mathewson, Bronx Boro. Pres.      |
| Wyo.  | Sheridan      | Aug. 18            | Eight miles of 8 and 10-inch sanitary sewers   | City Clerk.                               |
| N. Y. | Gloversville  | 5 p.m., Aug. 18    | Constructing 2,240 ft. of vit. pipe sewer, ranging from 4 to 12 inches, 8 manholes & laterals            | H. J. Hammer, City Engr.                  |
| N. T. | Syracuse      | 4 p.m., Aug. 20    | Storm water sewer  | Harry I. Hamlin, Secy. Int. Sew. Board    |
| Ia.   | Dubuque       | 8 p.m., Aug. 20    | 2,070 ft. 8-inch tile pipe   | J. J. Shea, City Rec.                     |
| Pa.   | Williamsport  | Noon, Aug. 21      | 690 ft. 33-inch segmental block sewer  | John G. Reading, Brandon Park Com.        |
| Minn. | Warren        | 8 p.m., Aug. 21    | Sewer extension, Imhoff tanks, filter beds   | G. O. Cross, City Rec.                    |
| N. Y. | Brooklyn      | 11 a.m., Aug. 21   | Sewer construction   | L. H. Pounds, Boro. Pres.                 |
| Ind.  | New Castle    | 10 a.m., Aug. 22   | Ingot iron sewer   | P. H. Wollford, Henry Co. A.              |
| Neb.  | Benson        | 8 p.m., Aug. 24    | Main sewer and disposal plant  | P. A. Edquist, Engr., Omaha.              |
| Minn. | Ada           | 8 p.m., Aug. 25    | 1,416 feet sewer   | W. F. Andrews, City Clerk.                |
| Ind.  | South Bend    | 10 a.m., Aug. 25   | Pipe sewer   | Dept. Public Works.                       |
| Ore.  | Enterprise    | Aug. 25            | Construction of sewer  | W. F. Savage, Recorder.                   |
| Ark.  | Argenta       | 10 a.m., Aug. 25   | 17 miles of tile sewer & 3 miles of reinforced concrete sewer to cost about \$300,000                    | Lund & Hill, Little Rock                  |
| Ind.  | Greencastle   | 7:30 p.m., Aug. 26 | 9.5 miles pipe sewer 8 to 18 inches  | M. S. Miller, City Clerk                  |
| Minn. | Warroad       | 8 p.m., Aug. 27    | Constructing sewers  | Council.                                  |
| Ind.  | New Castle    | 1:30 p.m., Aug. 29 | Drain  | C. E. Byrket, Drainage Comr.              |
| O.    | Bowling Green | Noon, Sept. 1      | Sewerage system  | D. C. Brown, Secy. Trust                  |
| Tex.  | San Antonio   | 4 p.m., Sept. 7    | 15,000 ft. 72-inch sanitary sewers   | Fred'k Fries, City Clk.                   |
| La.   | New Orleans   | Noon, Oct. 2       | Extensions to drainage system  | F. S. Shields, Secy. Sewerage & Water Bd. |

## WATER SUPPLY.

|       |               |                    |   |   |
|-------|---------------|--------------------|---|---|
| Sask. | Prince Albert | 1 p.m., Aug. 15    | 2,500 gals. per min. pump & motor, & 14-in. Venturi meter                 | J. R. Brown, City Clerk                             |
| Ill.  | Little York   | Aug. 15            | Drilling a well   | W. H. Brown, Vil. Clk.                              |
| Pa.   | Robinson      | Noon, Aug. 15      | Constructing storage dam, filter foundations and filter building          | Citizens' Water Co., McDon-                         |
| N. Y. | Ogdensburg    | 3 p.m., Aug. 17    | Water softening plant in State Hospital                                   | ald.  |
| N. Y. | Niagara Falls | 4 p.m., Aug. 17    | Mains and appurtenances   | J. H. B. Hanify, Secy. State Hospital Comm., Albany |
| O.    | Piqua         | Noon, Aug. 18      | 4,500 ft. 6-inch c.-i. water pipe, 150 ft. 4-inch c.-i. pipe and supplies | F. S. Parkhurst, Jr., C. E.                         |
| S. D. | Bonesteel     | 8:30 a.m., Aug. 18 | Water tank  | Albert Schroeder, Dir. P. S. Water Works Dept.      |
| N. Y. | Niagara Falls | Aug. 18            | Laying main for street fronting   | C. F. Jewell, City Aud.                             |

## BIDS ASKED FOR

| STATE                       | CITY                  | REC'D UNTIL   | NATURE OF WORK  | ADDRESS INQUIRIES TO |
|-----------------------------|-----------------------|---|---|----------------------|
| Sask., Canora.....          | 5 p.m., Aug. 18..     | Laying c. i. pipe; constructing pump house, steel tank, suction wells, etc.....   | H. M. Sutherland, Secretary                                   |                      |
| Ont., Toronto .....         | noon, Aug. 18..       | Installation of coal and ash handling apparatus at main pumping station.....  | Mayor H. C. Hocken, Chr. Bd. Control.                         |                      |
| Wash., Tacoma .....         | 2 p.m., Aug. 18..     | Furnishing chloride gas water sterilizing apparatus.....  | Jas. C. Drake, Comr.  |                      |
| Minn., Ada .....            | Aug. 19..             | Building artesian well .....  | W. R. Andrews, City Clk.                                      |                      |
| Pa., Philadelphia.....      | Noon, Aug. 19..       | Making water jet or wash test borings on certain sts.....   | A. M. Taylor, Director  |                      |
| Fla., Bradentown.....       | Aug. 21..             | 5,000-gal. reinforced concrete reservoir.....   | Phil Lacey, City Engineer                                     |                      |
| N. Y., Auburn.....          | Aug. 21..             | 80 H. P. and 100 H. P. return-tubular boilers.....  | J. W. Ackerman, Chf. Engr.                                    |                      |
| Tex., George West.....      | Aug. 24..             | Waterworks sewer system and light plant.....  | Water Board<br>Bartlett & Rainey, Conslt. Engrs., San Antonio |                      |
| N. J., Belleville.....      | 9 p.m., Aug. 25..     | Laying c. i. pipe.....  | Town Clerk  |                      |
| N. J., Woodbury.....        | 7.30 p.m., Aug. 25..  | Pumping station and main for artesian well system.....  | Arthur Starr, City Clk.                                       |                      |
| Neb., Dalton.....           | Aug. 27..             | Constructing water works, cost \$7,200.....   | J. L. Willis, Village Clk.                                    |                      |
| O., Marysville.....         | 2 p.m., Aug. 29..     | Well house, drilling wells, water softening plant, boiler with pumps and heater, etc.....   | H. H. Shirer, Sec. Bldg. Com., Columbus                       |                      |
| Tex., Denison .....         | Noon, Sept. 5..       | 2,000,000-gallon filter plant .....   | A. B. Clemmy, City Engr.                                      |                      |
| Man., Winnipeg .....        | Sept 19..             | 84 miles of aqueduct, \$8,729,000.....  | Greater Winnipeg Water Dist.                                  |                      |
| LIGHTING AND POWER.         |                       |   |   |                      |
| Tex., Mineola.....          | Aug. 15..             | Waterworks construction .....   | J. M. Falkner, City Secy.                                     |                      |
| N. Y., Albany.....          | 3 p.m., Aug. 17..     | Construction & equipment of power house, including boilers, steam conduits, electrical equipment & underground electrical conduits.....   | J. H. B. Hanafy, Secy. State Hospital Comm., Albany           |                      |
| Mont., Anaconda .....       | 8 p.m., Aug. 17..     | 43 electroliners .....  | M. J. Kelly, Clerk.   |                      |
| D. C., Washington .....     | Aug. 17..             | All equipment for switchboard room, conduits and supplies .....   | Chief Signal Officer, War Dep.                                |                      |
| D. C., Washington .....     | Aug. 18..             | Copper, brass, wrought iron pipe, evaporator and condenser tubes and electric motors.....   | Bureau of Supplies & Accts., Navy Dept.                       |                      |
| Ill., Normal.....           | 10 a.m., Aug. 18..    | Rehabilitating power plant.....   | Bd. Adm., Springfield   |                      |
| D. C., Washington .....     | Aug. 25..             | Centrifugal air compressor set.....   | Bureau of Supplies & Accts., Navy Dept.                       |                      |
| N. J., Newark .....         | 4 p.m., Aug. 26..     | Installing new boiler and apparatus.....  | Committee Pub. Bldgs.   |                      |
| FIRE EQUIPMENT.             |                       |   |   |                      |
| Wash., Tacoma.....          | 3 p.m., Aug. 15..     | One motor-driven combination chemical hose.....   | A. U. Mills, Comr. Pub. Saf.                                  |                      |
| N. J., Bloomfield.....      | 8 p.m., Aug. 17..     | Combination service, hook & ladder truck, motor driven, including equipment of 10 ladders, two fire extinguishers, one 40-gal. chem. cyl. 15-gal. gasoline tank, etc.....       | Raymond F. Davis, Town Clk.                                   |                      |
| N. Y., Brooklyn.....        | 10:30 a.m., Aug. 17.. | Extension to fire alarm telegraph system.....   | obt. Adamson, Fire Comr.                                      |                      |
| N. Y., New York .....       | Aug. 17..             | Extension to fire alarm telegraph system.....   | Fire Commissioner.  |                      |
| O., Steubenville .....      | Aug. 17..             | Furnishing 1,000 ft. of hose.....   | H. W. Patterson, Dir. P. Saf.                                 |                      |
| Minn., Brainerd .....       | Aug. 17..             | Construction of fire station .....  | V. N. Roderick, City Clk.                                     |                      |
| O., Akron .....             | Aug. 18..             | Constructing new fire station.....  | Director Public Safety.                                       |                      |
| N. J., Elizabeth.....       | 8 p.m., Aug. 20..     | One triple combination auto., one auto combination pump, engine & hose wagon, one auto combination chem. engine & hose wagon, one runabout chief's car.....                     | William J. Cox, Secy. Board Fire Comm.                        |                      |
| O., Tiffin .....            | Noon, Aug. 27..       | One triple combination chemical hose wagon and pumping engine gasoline driven, one city service ladder truck gasoline driven without equipment, one fire chief's roadster ..... | A. H. Hafley, Clk.  |                      |
| O., Marion .....            | Noon, Sept. 2..       | Two motor fire engines.....   | L. P. Smart, Dir. Pub. Safety.                                |                      |
| BRIDGES.                    |                       |   |   |                      |
| Minn., Mankato .....        | 10 a.m., Aug. 15..    | Culvert construction .....  | M. M. Cram, Co. Engr.   |                      |
| Ont., Toronto .....         | Aug. 15..             | Concrete or steel viaduct.....  | Board of Control.   |                      |
| N. Y., New Hartford.....    | Aug. 15..             | Constructing bridge at Genesee St., 75 ft. long and 90 ft. wide .....   | Arthur O'Brien, Utica, N. Y.                                  |                      |
| O., Delaware Co.....        | Aug. 15..             | Bridge over Olentangy River .....   | F. O. Highley, Co. Engr.                                      |                      |
| Pa., Titusville .....       | 2 p.m., Aug. 15..     | Constructing reinforced concrete bridge.....  | Jas. Cochran, Pres. Bd. Sun.                                  |                      |
| Pa., Harrisburg.....        | Noon, Aug. 15..       | Reinforced concrete arch bridge.....  | W. H. Lynch, Supt. St. & Pub. Improvements                    |                      |
| Neb., Omaha.....            | Noon, Aug. 15..       | Culverts .....  | F. Dewey, Co. Clk.  |                      |
| O., Akron .....             | 10 a.m., Aug. 15..    | Bridge over Federal Creek.....  | Bd. Comrs.  |                      |
| Minn., Belgrade.....        | 10 a.m., Aug. 15..    | Culvert and retaining walls .....   | M. M. Cram, Engr.   |                      |
| Minn., Luzerne.....         | 10 a.m., Aug. 15..    | Two reinforced concrete bridges .....   | Chairman Township Board.                                      |                      |
| Wis., New London.....       | Aug. 16..             | Constructing reinforced concrete arch bridge.....   | City Clerk  |                      |
| Mich., Lansing.....         | Noon, Aug. 17..       | 80 ft. concrete arch bridge.....  | F. P. Rogers, State Hwy. Commissioner                         |                      |
| N. J., N. Brunswick.....    | 2.30 p.m., Aug. 17..  | Steel and reinforced concrete culvert.....  | A. B. Fox, Co. Engr.  |                      |
| Minn., Mankato .....        | 2 p.m., Aug. 17..     | Four reinforced concrete bridges, —70 ft. long.....   | C. L. Kennedy, Co. Aud.                                       |                      |
| Tex., Corpus Christi.....   | Aug. 17..             | 8,500 ft. concrete causeway.....  | Bartlett & Renney, San Antonio, Cons. Engrs.                  |                      |
| Pa., Uniontown.....         | noon, Aug. 17..       | Bridge with concrete abutments.....   | Co. Road Engr., Fayette Co.                                   |                      |
| Pa., Fayette Co.....        | Noon, Aug. 17..       | Two concrete abutments.....   | Harry Kissinger, Co. Compt.                                   |                      |
| Wash., Snoqualmie .....     | Aug. 17..             | Bridge .....  | Bryan Phelps, Clk. King Co. Comrs., Seattle.                  |                      |
| Pa., Greenville.....        | Noon, Aug. 17..       | Superstructure .....  | H. G. Comstock, Clk. Mercer County Commissioners              |                      |
| O., Medina.....             | 1 p.m., Aug. 17..     | Masonry bridge .....  | L. F. Garver, Co. Aud.  |                      |
| Cal., San Jose.....         | 11 a.m., Aug. 17..    | Reinforced culvert .....  | H. A. Pfeister, Clerk.  |                      |
| Kan., Mound City.....       | Noon, Aug. 17..       | Reinforced concrete bridge .....  | John A. Wood, Clerk.  |                      |
| Ind., Frankfort .....       | Aug. 17..             | Constructing several bridges.....   | C. F. Cromwell, Aud.  |                      |
| Minn., Le Sueur Center..... | 2 p.m., Aug. 17..     | Bridge .....  | C. M. Schwartz, Chr. Route 4, Le Sueur Center.                |                      |
| Wis., Superior .....        | 2 p.m., Aug. 18..     | Grading, culverts and bridge.....   | C. J. Morisset, Co. Hwy. Com.                                 |                      |
| Minn., Walker .....         | 10 a.m., Aug. 18..    | Approach to bridge .....  | I. Byhre, Aud.  |                      |
| Ind., Fort Wayne .....      | 10 a.m., Aug. 18..    | Construction of concrete arches, repairing and painting of bridges .....  | Calvin H. Brown, Aud.   |                      |
| Wis., Blaine .....          | 2 p.m., Aug. 18..     | Repairing steel bridge .....  | M. E. Crowther, Town Clk.                                     |                      |
| O., London.....             | Aug. 19..             | Superstructure and approaches.....  | H. M. Chaney, Madison Co. Auditor                             |                      |
| Pa., Butler.....            | Aug. 20..             | Reinforced concrete superstructure, creosote block floor for two bridges.....   | W. B. Scott, Co. Comr.  |                      |
| Tex., Houston .....         | 10 a.m., Aug. 20..    | Two concrete bridges.....   | H. L. Washburn, Aud.  |                      |
| N. D., Martin .....         | 2 p.m., Aug. 20..     | Two corrugated culverts .....   | Adolph Schlenger, Co. Aud.                                    |                      |
| O., Marietta .....          | Noon, Aug. 21..       | Bridges .....   | W. B. Alexander, Washington Co. Aud.                          |                      |
| Pa., Meadville .....        | Aug. 21..             | Constructing two bridges.....   | Comrs. Crawford County.                                       |                      |
| Ohio, Toledo .....          | 10 a.m., Aug. 21..    | Constructing five culverts .....  | Chas. A. Sengenbacher, Co. A.                                 |                      |
| Ohio, Cincinnati .....      | noon, Aug. 21..       | Bridge over Sycamore Creek .....  | Albert Reinhardt, Clk. Board Comrs.                           |                      |
| O., Wapakoneta .....        | Aug. 22..             | Making repairs to several bridges.....  | J. H. Meyer, Co. Surv.  |                      |
| Kan., Erie .....            | Aug. 24..             | Constructing four bridges .....   | County Commissioners.   |                      |



## BIDS ASKED FOR

| STATE  | CITY         | REC'D UNTIL         | NATURE OF WORK  | ADDRESS INQUIRIES TO                        |
|--------|--------------|---------------------|---|---|
| Mo.    | Kansas City  | Aug. 24.            | Constructing two concrete bridges.  | County Surveyor.                            |
| Wash., | Ritzville    | Aug. 24.            | Three reinforced concrete bridges.  | F. R. Huett, Adams Co. Engr.                |
| Pa.    | Norristown   | 11 a.m., Aug. 24.   | Several bridges   | John J. Jacobs, Montgomery Co. Comptroller  |
| N. Y.  | New Hartford | 2 p.m., Aug. 24.    | Steel and concrete bridge.  | Chas. O. Padley, Town Clk.                  |
| Kan.   | Erie         | Noon, Aug. 24.      | Four bridges  | W. E. Neal, Clk.                            |
| Ariz.  | Phoenix      | 2 p.m., Aug. 24.    | Bridge construction   | U. S. Reclamation Service.                  |
| N. J.  | Perth Amboy  | 2.30 p.m., Aug. 24. | Concrete slab bridge  | Bd. of Chosen Freeholders.                  |
| Pa.    | Butler       | Noon, Aug. 25.      | Viaduct   | H. O. Carson, City Engr.                    |
| Pa.    | Williamsport | Noon, Aug. 25.      | Several bridges   | A. P. Zuber, Lycoming Co. Clk.              |
| Ind.   | Muncie       | Noon, Aug. 25.      | Two steel bridges   | F. M. Williams, Aud.                        |
| N. Y.  | Albany       | Noon, Aug. 25.      | Superstructure and approaches of Vischer's Ferry Road, to cost \$45,885 and raising highway bridge at Mechanicville, to cost \$8,314. | D. W. Peck, Supt. Pub. Wks. City Engineer.  |
| Alt.   | Calgary      | Aug. 26.            | Four arch span reinforced concrete bridge.  | County Commissioners.                       |
| O.     | Cincinnati   | Aug. 28.            | Reinforced concrete bridge  | P. J. Thornton, Clk. Mercer Co. Bd. Supvrs. |
| Cal.   | Merced       | 10 a.m., Aug. 28.   | Concrete floors and abutments.  | J. A. French, St. Engr. County Comrs.       |
| N. M.  | Santa Fe     | Aug. 29.            | Four span steel bridge across Rio Grande  | County Comrs.                               |
| Wash.  | Seattle      | Aug. 31.            | Bridge  | Volume Co. Sur.                             |
| Cal.   | Sanora       | Sept. 7.            | Concrete  | H. C. Hocken, Mayor.                        |
| Ont.   | Toronto      | Noon, Oct. 5.       | Bridge over Bloor Street.   |   |

## MISCELLANEOUS.

|       |               |                      |   |  |
|-------|---------------|----------------------|---|--|
| Ark.  | Texarkana     | Aug. 15.             | Repairing new cell work in county jail building.  | Judge Paul J. Cella.                         |
| Ia.   | Burlington    | 11 a.m., Aug. 15.    | Reinforced concrete covered flood channel.        | City Engineer.                               |
| Pa.   | Philadelphia  | Aug. 16.             | Removing and disposal of garbage, etc.            | Dept. Public Works                           |
| N. J. | Greenfield    | 8 p.m., Aug. 17.     | Collection and removal of garbage and ashes.      | R. F. Davis, Town Clk.                       |
| D. C. | Washington    | 2 p.m., Aug. 17.     | 100 h.p. kerosene propelling engine.              | Comr. Lighthouses.                           |
| Ill.  | Elgin         | 10 a.m., Aug. 18.    | Building state hospital.                          | State Bd. Adm. Springfield.                  |
| D. C. | Washington    | Aug. 18.             | Supplying scoop shovels.                          | Bur. Sup. & Accts. Navy Dept.                |
| Pa.   | Philadelphia  | 11 a.m., Aug. 19.    | Furnishing 4,660 metal wall lockers.              | Col. T. Cruise, Dept. Q. M.                  |
| Cal.  | San Francisco | Aug. 19.             | 12,000  | Sec. Bd. P. W.                               |
| Ill.  | Chicago       | Noon, Aug. 19.       | 894 enameled street name signs.                   | J. F. Neals, Secy.                           |
| D. C. | Washington    | 10:30 a.m., Aug. 19. | Furnishing shell hoists, motor-driven pumps, etc. | Gen. Pur. Off.                               |
| D. C. | Washington    | 10:30 a.m., Aug. 21. | Steel cable, pipe fittings, lead, etc.            | Gen. Pur. Off., Panamal, Calif.              |
| N. Y. | Brooklyn      | Noon, Aug. 21.       | Removal of snow and ice.                          | J. T. Fetherston, Comr. Street Cleaning.     |
| O.    | Youngstown    | Noon, Aug. 24.       | Installing vacuum cleaning system.                | W. N. Ashbaug, Dir. Schools.                 |
| Cal.  | Los Angeles   | 2 p.m., Aug. 25.     | Furnishing delivery truck.                        | Board Education                              |
| N. Y. | New York      | Noon, Aug. 25.       | General Construction of county court house.       | C. J. McCormick, Pres. Richmond.             |
| Ill.  | Chicago       | 11 a.m., Aug. 27.    | Constructing head house, Pier No. 2.              | E. C. Shankland, Chn. Harbor & Subway Com.   |
| Cal.  | San Diego     | 11 a.m., Aug. 29.    | Coal hoisting tower.                              | Bur. Yds. & Docks, Wash., D. C.              |
| La.   | New Orleans   | Aug. 30.             | Wire & cable for sewage & water board.            | Geo. G. Earl, Gen. Supt. Sew. & Water Board. |
| Ala.  | Montgomery    | Aug. 31.             | 20,000 barrels Portland cement.                   | F. I. Brown, U. S. Engr.                     |
| Pa.   | Harrisburg    | 10 a.m., Sept. 1.    | Furnishing motor vehicle license plates.          | E. M. Bigelow, St. Hwy. Com.                 |

## STREETS AND ROADS

**Oakland, Cal.**—City Council appropriated sum of \$5,350 out of Public Betterment Fund for 1914-1915 to pay for asphaltting of central 8 ft. of E. 14th St. between Sausal Creek and 38th Ave.

**Georgetown, Del.**—Boulevard 100 ft. in width extending from Rehoboth to Indian River Inlet, along ocean front, distance of 5 miles, will be laid out by Public Lands Commission.

**Washington, D. C.**—Plans being considered for constructing road from Arlington Cemetery to connect with road to Mt. Vernon, cost about \$60,000.

**Fort Meade, Fla.**—Citizens will vote Aug. 21 on a \$25,000 bond issue for brick street paving.

**Jacksonville, Fla.**—Petition asking for election to decide whether Green Springs Commissioner's District shall vote \$60,000 worth of bonds to complete roads left unfinished was presented at meeting of County Commissioners. This will be decided by the Board of Commissioners in September.

**St. Augustine, Fla.**—City Council took decisive action which will mean more street paving in St. Augustine within next 6 months than ever before. Total amount of street paving contracts authorized will amount to upwards of \$35,000.

**Atlanta, Ga.**—Ordinances introduced asking for paving of two streets with bituminous macadam and another street with bitulithic.

**Canton, Ill.**—Board of Local Improvements recommended that W. Vine St. be paved with concrete. Proposed Vine St. improvement will connect with the Fairview hard road. Following is engineer's estimate: 4,481.84 cu. yds. excavation, at 35 cts. a cu. yd., \$1,568.64; 3,495.09 l'n. ft. concrete curb, at 45 cts. per ft., \$1,572.79; 5,336.42 sq. yds. reinforced concrete pavement at \$1.25 per sq. yd., \$6,670.52; court costs, commissioner's fees, printing, etc., \$600; total, \$10,411.95.

**Peoria, Ill.**—Resolutions were passed by Council providing for paving and construction of cement sidewalks.

**Springfield, Ill.**—Board of Local Improvements is now contemplating paving of streets around County Court House with creosote cedar blocks. The Board of Local Improvements has made

study of cedar block paving and is expected to use these in much of new paving.

**Streator, Ill.**—Ordinance passed to pave 1st St. Cost of pavement estimated on 20-ft. width will be \$1,835.40. Council decided on 24-ft. width.

**Brazil, Ind.**—Common Council adopted resolution to construct and improve Alabama St. from south side of Compton St. to south side of Hendrix St. by paving same with brick, laid on 8-in. base of stone, crushed brick or gravel.

**Huntington, Ind.**—It has been decided to build Charles road this year and to build Smelter road next year.

**Indianapolis, Ind.**—Plans have been adopted for paving Oriental street, from Washington street to Sturm avenue, at estimated cost of \$23,280; New York street, from Dorman street to Arsenal avenue, at estimated cost of \$15,983, and Salem street, from 36th to 38th street, at estimated cost of \$12,497. These estimates are based on wooden block, the highest priced material.

**South Bend, Ind.**—Council has decided to improve south side of Fox St. from Miami St. to east line of Demler's second addition by the construction of cement sidewalk and cement curb on south side of Fox St.; to improve Donald St. from Michigan St. to Main St. by grading said Donald St. from property line to property line, and constructing cement sidewalks and cement curbs on both sides of said street; to improve Johnson St. from Michigan Ave. to Vassar Ave. by grading and paving roadway, also intersecting and entering street and alleys lying within said portion of Johnson St. not included in roadway, to be improved with asphalt, asphaltic concrete, bitulithic, creosoted wooden blocks, or brick laid on 5-in. Portland cement gravel concrete foundation, or with a brick laid on 6-in. rolled gravel foundation, or concrete pavement 7 ins. in depth; placing necessary marginal cement curb, curbing the roadway with cement curb where same is not already constructed; also construction of the necessary storm water inlets and conduits.

**Dubuque, Ia.**—Council has given notice that several streets are to be improved as follows: West Fifth street by constructing a cement curb and brick

gutter eight feet wide on a concrete foundation; Burch street, from West Fifth street to Fenelon Place, by brick gutters four feet wide on a concrete foundation; West Fifth street, from the westerly side of Hill street, with cement curb and brick gutter four feet wide on a concrete foundation; West Seventh street, from Hill street easterly to east end of West Seventh street, to curb and gutter with combination cement curb and gutter on south side thereof.

**Keokuk, Ia.**—Council resolved that it was necessary to make improvements by paving with concrete and curbing with cement, foundation to be prepared and paving and curbing to be constructed in accordance with plans and specifications to be prepared by the City engineer and approved by the City Council, following-named streets and parts of streets: Franklin from the west line of 15th St. to the east line of 16th St., width of paving, 35 ft. between curbs.

**Leavenworth, Kan.**—It was resolved to curb, regrade and pave 6th St. from north line of Choctaw St. to south line of Oak St. here. Curbing is to be of artificial stone of approved quality and dimensions and is to be set to proper line on both sides of street, making a width between the curbs 30 ft. Regrading is to consist of surfacing of street to 9½ ins. below the established grade. Paving is to be of one course of vitrified brick of approved size and quality laid on edge on not less than 1½ ins. of sand upon a foundation of not less than 4 ins. of Portland cement.

**Lexington, Ky.**—City Commissioner decided to advertise for bids for construction of approximately 4 miles of new streets, with modern paving material, calling for expenditure of \$200,000. Bids will be opened by Mayor Cassidy and the Commissioners at the City Hall on Aug. 17. Most of the new streets will be constructed with asphalt.

**Saginaw, Mich.**—State may aid in project started by Board of Trade and Commerce to build a boulevard, extending from Saginaw to Bay City.

**Duluth, Minn.**—Resolutions were passed by Council for grading streets and constructing sidewalks.

**Walker, Minn.**—County Auditor Ryhre has received word that State Highway Commissioner has approved of three El-

well roads running through Cass County, and notices for bids of road construction are being issued.

**Belvidere, N. J.**—Warren County Board of Freeholders appropriated \$25,000, to be used in additional repair of roads. Board also decided to build one mile of road from Blairstown to station on the Lackawanna cut-off.

**Elizabeth, N. J.**—Ordinance was passed to repair nearly every telford and macadam road in Elizabeth.

**Newark, N. J.**—Repaving of S. Broad St. from South to Poinier St. with asphalt block was decided upon by the Board of Works.

**Passaic, N. J.**—Notice was given of intention to lay flagging full width of sidewalks on both sides of Main avenue, from Monroe street to city limits; to lay permanent pavement upon Erie street and upon Franklin avenue; to reset curbs in concrete; to lay house connections with sewers and to reset manhole heads where required.

**Roselle, N. J.**—See Sewerage.

**Geneva, N. Y.**—City engineer was instructed to set grade stakes for sidewalk to be constructed on east side of North Broadway below Lake Shore.

**Beulah Township, N. C.**—Council has voted \$40,000 in bonds and these have been sold in order to build roads, 40 miles of which have already been contracted for at \$550 per mile.

**Greensboro, N. C.**—Citizens voted \$100,000 in bonds for permanent improvement of streets. About \$200,000 will be expended.

**Lima, O.**—Summers & Hardin will build pavement of Metcalf St. from Kirby St. to Ottawa River upon their bid of \$8,916. Also Spring St. pavement from Main St. to Central Ave., for \$7,264. Jameson & Blosser will lay pavements on Union St., Wayne to High, \$7,936; Union St., Market to Elm, \$8,146, and Central Ave., Market to Ottawa River, \$10,575.

**Marion, O.**—Resolution calling for sandstone sidewalks on several streets and for sanitary sewers and cellar drains were recently adopted by Council.

**Eugene, Ore.**—Eighth avenue west, between Lincoln street and Blair boulevard, will be widened three feet on each side, curbing to be moved back that distance and pavement laid in vacant space. City engineer's estimate of cost of work is \$5,397.

**Hood River, Ore.**—County will soon be ready to advertise for bids on Columbia highway contracts in this county. Engineer J. A. Elliott will supervise construction of the road work and has forwarded estimates to State Highway Commission.

**Altoona, Pa.**—Ordinance providing for paving of several streets were passed recently.

**Beaver, Pa.**—City Council has decided on improvement of lower Seventh Ave. between Union Drawn Steel Co.'s plant and First St., and Eighth Ave. between 17th St. and Book House.

**Erie, Pa.**—Ordinance was introduced providing for paving, grading, curbing and draining of Wilson St. from 3d to 5th St.

**Erie, Pa.**—Ordinance was passed providing for grading, draining and curbing on both sides of roadway of 30th St. from Peach St. to Chestnut St.

**Harrisburg, Pa.**—Several streets were ordered graded by Council.

**Kittanning, Pa.**—Ordinance has been passed for paving of Hawthorne avenue.

**West Warwick, R. I.**—Council approved ordinance calling for relaying, widening and straightening of Main St.

**Woonsocket, R. I.**—City contemplates paving Pona St. and Ernst St. and constructing surface water drains.

**Fort Mills, S. C.**—Town Council authorized work of extending cement paving on Confederate St., distance of over 1,000 ft.

**Corpus Christi, Tex.**—Council passed ordinance calling for paving of Hancock Ave., from South Carancahua to 2d St.; for 2d St., from Hancock to Buford Ave.; for Buford Ave., from 2d St. to Bayview Ave.

**El Paso, Tex.**—County Comrs. voted to construct asphalt macadam road from Ysleta to Quadrilla, cost about \$100,000.

**Burlington, Vt.**—Street work was ordered by Council as follows: Cement sidewalks installed on west side of St. Paul St. between Maple St. and Shelburne road; on North St. between Murray St. and Elmwood Ave. and on both sides of Rose St.

**Norfolk, Va.**—Resolution passed by Aldermen appropriating \$20,000 for widening and extension of Ceve St.

**Colfax, Wash.**—County Comrs. approved plans for constructing 4½ miles Permanent Highway No. 9.

**Sheboygan, Wis.**—Resolved by Mayor and Common Council that Board of Public Works be authorized to purchase 5,350 gals. of Tarvia A and 2,150 gals. of Tarvia X, without inviting proposals therefor.

**Superior, Wis.**—City Commission ordered standard cement sidewalk constructed on east side of G Ave. from Belknap St. to Hill Ave.

#### CONTRACTS AWARDED.

**Stockton, Cal.**—Federal Const. Co., of San Francisco, was awarded contract for the street work. Winning firm bid \$80,381.98, or \$13,046.89 less than the next lowest bidder, Clark & Henery. Work will be done under district plan and includes asphalt macadam streets, graveled alleys, concrete walks, curbs and gutters, all complete under one contract. Bids were as follows: Federal Const. Co., \$80,381.98; Clark & Henery, \$93,428.87; Guy T. Covault, \$96,005.91; Ransome-Crummey Co., \$96,226.24. Successful bidder was \$5,460.09 under estimate of City Engineer Compton.

**Greenwich, Conn.**—W. J. Mertz, of Port Chester, has received contract for new road to be built on North St., at \$35,334.95. Other bidders were: R. D. Pierce, Jr., of Bridgeport, \$37,058; W. F. McCabe Co., White Plains, \$38,919.86; Pierson Engineering Co., Hartford, \$46,310. Contract has also been given for concrete road on Hill road, from Telford road at entrance of the Golf Club to the Stanwich road. Pierson Engineering Co., of Hartford, was the lowest bidder, \$18,388. Other bidders were: W. F. McCabe Construction Co., of White Plains, \$19,491.25; Young & Hyde, New York, \$18,414.50; B. D. Pierce, Jr., Bridgeport, \$27,068.

**Windsor, Conn.**—At special meeting of Windsor Sewer District, contract for laying sidewalks was awarded to Baker & Lasher, Inc., of New Britain. Few minor changes were authorized by voters, also some extensions which were incorporated in contract at cost not to exceed \$17,000, including engineering.

**Westport, Conn.**—Contract for building new concrete and macadam road between Saugatuck and East Norwalk line was awarded by State Highway Commission to Hassan Pavement Co., of New York City. New road will be completed in about four weeks and carries with it a guarantee to stand satisfactory wear for five years.

**St. Augustine, Fla.**—C. S. Young Const. Co., of Jacksonville, submitted the lowest bid for the brick pavements. Seth Perkins & Son were the successful bidders for the streets to be paved with macadam asphalt.

**Bloomington, Ill.**—Brenz & Son were awarded contract for construction of concrete alley in White's Place addition, contract price being \$1,849.92. Brenz bid \$1.41 per sq. yd. and Bansau bid \$1.44 per sq. yd.

**Sterling, Ill.**—Contract for curb and gutter for Sixth avenue paving has been let to A. D. Martin, who has large force of men at work on contract.

**Brazil, Ind.**—Charles Landine was awarded contract for construction of 1½ miles stone and gravel road in Perry Township by Board of Commissioners, and Collins & Coopridge were given contract for construction of the Thomas Woolsey, 3 mile stone road in Harrison Township. There were 12 bidders on the latter road: Chas. Landine, \$4,281; A. L. Tribble, \$5,000; C. A. Rhodes, \$4,798. Bids on Thos. Woolsey road: Hawkins Bros., \$16,438.20; McGuire & Son, \$16,597; A. M. Shattuck, \$15,998; Thos. M. Crouse, \$15,944; C. O. Landine, \$16,000; Harvey Hawkins, \$16,147; E. J. Schaeffer, \$16,334; Collins & Coopridge, \$15,590; Deets, Lasell & Deets, \$15,990; A. L. Tribble, \$15,675.

**Erookville, Ind.**—Carr & Puttmann, of Newport, received contract for construction of John M. Schebler macadam road in Salt Creek township, for \$9,960.

**Fort Wayne, Ind.**—County Commissioners let contracts for two stone roads. First is Yellow River road for distance of 15,106 ft., which was let to Bell & Barrand on bid of \$24,262. Estimate was \$29,210.57. Contract for Eel River road for 15,720 ft. went to A. P. Addington on his bid of \$16,576. Estimate was \$17,308.45.

**Hartford City, Ind.**—Fourteen bidders were attracted to Commissioners' Court when two choice contracts were awarded. Work sold was construction of Monroe and Franklin street roads, which are to be built under the three-mile road law. Successful bidder was the firm of Harley & Trant, of this city, who landed both contracts at figures \$25,085.67 be-

low estimated cost. Two other roads were sold, Roberts and Union Center, R. G. Culberson being successful bidder. His figures were \$6,753.25 below the estimate of cost.

**Muncie, Ind.**—William M. Birch secured three contracts for construction of paved roadways in connection with cement curbs and gutters. In each case bid was \$1.73 per sq. yd. for paving and 43% cts. per lin. ft. for curb and gutter. James Garvey was awarded contract for paving of alley running north and south in Anthony homestead addition. He entered bid of \$2 per lin. ft. Contract for the paving of alley between Main and Jackson Sts. from Beacon St. to Ohio Ave. was awarded to Michael McGrath, who submitted bid of \$1.55 per lin. ft.

**Portland, Ind.**—Following bids were received on Charles K. Watson road: Hayes Construction Co., \$8,110; Lowrey & Mannix, \$7,978; Lee H. Miller, \$6,770.15; Isaac Heston, \$5,558; Wheat & Bone, \$7,147; Robinson & Stultz, \$6,970; Walter Swiher, \$6,646. Contract was awarded to Isaac Heston at his bid of \$5,558. Estimate of the County Engineer for road was \$9,597.33. Following bids were received for construction of Chas. A. Hanlin road: D. O. Teeters, \$5,480; Isaac Heston, \$4,474; Wheat & Bone, \$4,538.51. Contract was awarded to Isaac Heston at his bid of \$4,474. Estimate of the County Engineer was \$6,408.51.

**Shelbyville, Ind.**—Contract for Mark Moore road in Van Buren township was awarded to William Ogden, contract price being \$6,926. Firm of Porter & White was awarded contract for Chas. Schutt road at \$5,626, and Harve Oltman secured contract for Stillabower road in Hendricks township at \$3,987.

**Portland, Me.**—Contract for 5,020 sq. yds. of concrete paving and 464 sq. yds. of granite block awarded to John W. Gulliver, Portland, \$7,594.52. Other bidders were Forgiore & Romano, Portland, \$7,979.75; Hassam Paving Co., Worcester, Mass., \$8,376.98; Small & Ingalls, Bar Harbor, \$9,425.20.

**Duluth, Minn.**—Contract for improvement of Victoria St. from Woodland Ave. to Hartley road was awarded to A. N. Nelson on his bid of \$9,336.66 for one-course concrete. Street will be paved to a width of 16 ft.

**Duluth, Minn.**—Contract for concreting of two miles of New Duluth road to be improved this year will probably be awarded to D. H. Clough & Co. Clough firm submitted lowest bids on both one-course concrete and two-course concrete. Price on former, based on engineer's estimate of quantities, was \$48,070. Engineer's estimate was \$42,240. Half a dozen other bids were submitted. Some were close to those of successful bidders and others were \$4,000 to \$5,000 higher.

**Hibbing, Minn.**—J. C. Brown was successful bidder for construction of two miles on Kangas road, his figure of \$8,990 being lowest submitted. P. McDonnell, of Duluth, secured contract for 2½ miles on Stewart road at his bid of \$8,850.

**Chester, N. H.**—Contract for work on state highway in Chester has been awarded to James Watkins, of Amesbury, Mass.

**Portsmouth, N. H.**—Bids for paving of Islington and Deer Sts. were opened, but contract was not awarded. Seven firms sent in bids, the figures being as follows: Sheehan & Davis, Lynn, Mass., bitulithic, \$1.59 sq. yd.; granite block, \$3.44; brick block, \$2.78. Sacco & Wood, Portsmouth, bitulithic, \$2.55; granite block, \$3.24. Hanscom Construction Co., Boston, bitulithic, \$2.55; brick block, \$2.65; granite block, \$3.24. Thomas Fitzgibbons, Beverly, Mass., brick block, \$2.69; granite block, \$3.24. James Marcello, Portsmouth, brick block, \$2.55; granite block, \$3.20. Adams-Buxton Co., Boston, bitulithic, \$1.48. Warren Bros., Boston, bitulithic, \$1.50.

**Cranford, N. J.**—Contract for sidewalks in Burnside Ave., Besler Ave. and Johnson Ave. was awarded E. L. Moore at 44½ cts. per ft. Contract for curbs and gutters in 6th St. and Union Ave. was awarded to C. Masso.

**New Brunswick, N. J.**—Two bids for resurfacing of Somerset street, from Prospect street to Easton avenue, were received by Common Council, the bidders being Conrad Sebolt and T. H. Riddle. Sebolt bid \$1.45 per square yard for asphaltic concrete, and \$9 per cubic yard for concrete. Estimate submitted by Mr. Riddle was \$1.60 per square yard for asphaltic concrete, and \$9.25 per cubic yard for concrete.

**Perth Amboy, N. J.**—Bids for paving were opened and contract awarded to Hastings Pavement Co. for paving Am-



boy avenue with asphalt block and granite block, paving Mechanic street with asphalt block, paving Oak street with asphalt block, paving Brighton avenue with asphalt block and paving Cortlandt street with asphalt block. Following are bids received: Cortlandt Street Paving—Hastings Paving Co., excavation, per cu. yd., 62 cts.; concrete, per cu. yd., \$5.76; old curb, per lin. ft., 50 cts.; new curb, per lin. ft., 80 cts.; asphalt block, per sq. yd., \$1.45. The Barber Asphalt Paving Co., excavation, 76 cts.; concrete, \$5.50; old curb, 55 cts.; new curb, 95 cts.; asphalt block, \$1.56½. Oak Street Paving—Hastings Paving Co., excavation, 1 ct.; concrete, \$6; old curb, per lin. ft., 50 cts.; new curb, per lin. ft., 80 cts.; asphalt block, \$1.66. The Barber Asphalt Paving Co., excavation, 76 cts.; concrete, \$5.50; old curb, 55 cts.; new curb, 95 cts.; asphalt block, \$1.55½. Mechanic Street Paving—The Hastings Paving Co., excavation, 1 ct.; concrete, per cu. yd., \$5.76; old curb, per lin. ft., 50 cts.; new curb, 80 cts.; asphalt block, \$1.60. The Barber Asphalt Paving Co., excavation, 76 cts.; concrete, \$5.50; old curb, 55 cts.; new curb, 95 cts.; asphalt block, \$1.56½. Amboy Avenue Paving—The Hastings Paving Co., excavation, per cu. yd., 68 cts.; concrete, per cu. yd., \$5.76; granite block, per sq. yd., \$3.25; new curb, per lin. ft., 80 cts.; asphalt block, per sq. yd., \$1.49. The Barber Asphalt Paving Co., excavation, 76 cts.; concrete, \$5.50; granite block, \$3.55; new curb, 95 cts.; asphalt block, \$1.58½. Brighton Avenue Paving—The Hastings Paving Co., excavation, 68 cts.; concrete, per cu. yd., \$5.76; old curb, per lin. ft., 50 cts.; new curb, per lin. ft., 80 cts.; asphalt block, \$1.50. The Barber Asphalt Paving Co., excavation, 76 cts.; concrete, \$5.50; old curb, 55 cts.; new curb, 95 cts.; asphalt block, \$1.57.

**Plainfield, N. J.**—Common Council awarded contract for macadamizing of sections of Emerson and Monroe avenues and West Fourth street to Burke & Bonham, contractors, at cost of \$11,832.35, the lowest bid. Other bidders were: Charles Lentz of Rahway, Weldon Contracting Company of Rahway, and Mobus-Saboche & Company of this city.

**Rahway, N. J.**—Contract for paving Irving street, from Poplar street to Milton avenue, and Milton avenue, from railroad arch to Main street, was awarded to Hastings Paving Company. Figure of Hastings concern was \$2.61 per square yard for asphalt blocks. Bids were received from five others, as follows: Charles Lentz, of Rahway, brick pavement at \$2.19 per square yard; Sheffler-Burns Company, three grades of brick, ranging from \$2.30 to \$2.50 per square yard; Hassen Paving Company, paving blocks, at \$1.50 and \$1.60 per square yard; Standard Bitulithic Company, bitulithic blocks, at \$2.36 per square yard, and Richard Lamb, wood blocks, at \$2.61 and \$2.79 per square yard, according to the kind of bed to be constructed. A separate bid was made by J. M. Sheffler, of Sheffler & Burns, on wood blocks, at \$2.40.

**Binghamton, N. Y.**—Bids for resurfacing Chenango St. viaduct with bitulithic were received. Warren Bros., of Boston, who laid the Prospect Ave. pavement, were only bidders and the contract was awarded to them at \$1.75 per yd., city to pay \$10 per cu. yd. for bitulithic binder to fill the holes.

**Lockport, N. Y.**—M. McAffee, of this city, got contract for 636 mile of Loveland-Beach Ridge road in Wheatfield at a bid of \$4,391.70. Other bidders were: Messrs. Charles J. Broecker, William H. Schmidt and Christian Moeller, of Wheatfield, \$4,468.60; John W. Landel, North Tonawanda, \$4,512.75. Erie County-Raymond Hill road on south end of county in town of Lockport is 2.04 miles long. John Landel bid \$17,955.76, and Hammond & Tracey, of Middleport, bid \$17,336.90. Latter firm got the job. Hammond & Tracey were sole bidders on 2.3 miles of road from McNails to Dying-er's Corners in town of Royalton, their price being \$16,427. They got the job.

**Newburgh, N. Y.**—Contract for paving of William St. awarded to James L. Kehoe for \$24,479.35.

**Schenectady, N. Y.**—Contracts are to be let for laying of about 64,000 sq. yds. of sheet asphalt pavement, to be laid in accordance with standard specifications of kind of work in city. This work is to be done in Foster, Oakwood, Third, Tenth, Maplewood, Harrison, Lexington and Turner Aves., Ave. B, Edward, Ontario, Watt, Irving and Hugh Sts., Rosa and Ardsley roads.

**Schenectady, N. Y.**—Paving of Foster St. was awarded to Union Paving Co. for

\$10,643.50, likewise paving of Rosa road for \$12,906.50 and Third Ave. for \$8,011.50.

**Columbus, O.**—Establishing a record in highway department, Commissioner Jas. Marker awarded road contracts which entail an expenditure of nearly \$2,500,000. Contracts totalling \$2,692,000 were offered and bids were received on 91.7 per cent. of the work. Jobs are scattered over 54 counties. A total of 282 bids were received on 91 of 98 contracts offered for new construction. Brick, concrete or macadam are to be used. List of low bidders and counties in which the roads are located follow: Ashtabula County, Niles-Ashtabula road, 5.09 miles, F. P. Fitzgerald, Ashtabula, \$78,862.20. Auglaize: Piqua-St. Marys road, 1.9 mile, C. W. Cody, Celina, \$14,000. Butler: Hamilton-Middletown road, 1.91 miles, Johns & Son, Trenton, \$38,191. Carroll: Canton-Stuebenville road, 1.04 miles, Wise Bros., Canton, \$18,900. Clark: Springfield-Washington C. H. road, 2.9 miles, Graham & Kinnear, Columbus, \$26,548. Clermont: Cincinnati-Batavia road, 2.4 miles, Thurber & Co., Cincinnati, \$30,000; Ohio River road, 1.04 miles, concrete, Thurber & Co., \$12,400; Cincinnati-Chillicothe road, 2.18 miles, Thurber & Co., \$14,900; Bethel-Chillo road, 2.04 miles, Thurber & Co., \$14,100; Cincinnati-West Union road, 2.26 miles, Thurber & Co., \$15,900. Columbiana: Unity-Salem road, 4.73 miles, John McCarron & Son, Youngstown, \$98,081.49. Crawford: Bucyrus-Tinnin road, 1.14 miles, brick, L. R. McMichael, Bucyrus, \$17,190; Bucyrus-Plymouth road, 1.25 miles, L. R. McMichael, Bucyrus, \$20,900; Bucyrus-Crestline road, 1.19 miles, L. R. McMichael, Bucyrus, \$21,990. Delaware: Columbus-Wooster road, .16 mile, Gill & Roof, Sunbury, \$4,399; Delaware-Mt. Gilead road, .21 mile, Charles W. Riddle, Delaware, \$4,913.55; Sunbury-Mt. Gilead road, 2.41 miles, Mark Gledhill, Gallon, \$25,300. Fayette: Springfield-Washington road, 1.05 miles, Mark Van Gurdy, Washington, C. H., \$16,655.50; Washington-London road, 1.01 miles, Mark Van Gurdy, Washington, C. H., \$16,499. Fulton: Toledo-Wauseon road, 3.56 miles, Peter H. Drum, Swanton, \$36,974.70; Wauseon-Morenci road, 1.05 miles, National Limestone Co., Carey, \$8,975; Archbold-Fayette road, 1.5 miles, Jonathan & Ofziger, Wauseon, \$11,650. Gallia: Gallipolis, 1.7 miles, Jones & Miller, Patriot, \$15,065; Geauga - Cleveland - Meadville road, 2.13 miles, Sherman De Croot, Youngstown, \$35,000; Cleveland-Meadville road, 2.45 miles, Davis Lowensoh Kent, \$29,950. Guernsey County: Cambridge-Coshocton road, .69 mile, Mallere-nee & Kelly, Freeport, \$10,900. Hancock: Findlay-Bowling Green road, 1.75 miles, Gray Bros., Bowling Green, \$14,700; Findlay-Carey road, 1 mile, O. A. Parker, Van Lue, \$9,900; Henry-Holgate, Kiefersville road, 2.05 miles, Westnek & Line, Holgate, \$17,100. Hocking: Logan-New Lexington road, 1.4 miles, E. C. Rodebaugh, Logan, \$12,472.68. Huron: Plymouth-Norwalk, 1.07 miles, McGarry & Sparks, Lansing, Mich., \$12,100; Monroe-ville-Chicago Junction road, 1.82 miles, concrete, The Modern Construction Co., Fremont, \$16,863; Oshland-Norwalk road, 3.45 miles, The Buckeye Engineering Co., Norwalk, \$41,800. Jackson: Jackson-Ironton road, 3.65 miles, McCoy Bros. & Keller, Jackson, \$29,416. Knox: Mt. Vernon-Coshocton road, 1.1 miles, E. N. Turner, Logan, \$23,600.

**Tiffin, O.**—These are low bids on Seneca County macadam improvements: Lima-Sandusky road, 1.7 miles, Knepper & Yundt, Tiffin, \$13,173.45; Tiffin-Republic road, 1 mile, Lee Bros., Clyde, \$8,700; Lima-Sandusky road, 1.25 miles, Souder & Peters, Fostoria, \$9,650; Fostoria-Carey road, .74 mile, Knepper & Yundt, Tiffin, \$5,022.40; Upper Sandusky-Belle-vue road, 3.18 miles, Knepper & Yundt, \$26,999.20.

**Eugene, Ore.**—Mill St. between 10th and 11th Aves. paving work awarded to Clark & Henery Co. This work will be done for \$1.63 a sq. yd. Paving 9th Ave. E. between High St. and the S. P. track awarded to Clark & Henery Co. at \$1.79 a sq. yd., making a total cost of \$15,710.52.

**Portland, Ore.**—Largest paving contract let this year has been awarded by City Council to Oregon Independent Paving Co. for improvement of district from E. 26th to E. 29th St. and from E. Clay St. to Stephens St. Contract price is \$39,218.92, and the type is asphaltic concrete.

**Hazleton, Pa.**—Bids for paving and gutters, as tabulated by the City Engineer, were: Jacob Jacoby, \$521; James Corelli, \$559; Ludwig Kramer, \$564; Pasquale Pacenza, \$656. The contract

was awarded to Jacob Jacoby. Bids for crossings and cross gutters were: Jacob Jacoby, \$1,410; James Correlli, \$1,380; Ludwig Kramer, \$1,614; Pasquale Pacenza, \$1,040. Contract was awarded to Pasquale Pacenza.

**Lebanon, Pa.**—United States Wood Preserving Co. secured contract for supplying wood block, while the Franklin Const. Co., of New York, lowest bidder on wood block, received contract for laying same. Contract prices were: 8th St., Chestnut to the P. & R., \$26,171; Cumberland St., 5th to 9th St., \$26,909.

**Philadelphia, Pa.**—Contracts for paving, surfacing, repaving, grading and other street work were awarded by Chief Connell, of the Bureau of Highways. Aggregate cost of work let will amount to approximately \$385,000. Fourteen contracts for resurfacing of country road, at a cost of \$204,379, were awarded. There were 35 contracts for grading, which will amount to \$73,138. Cost of vitrified block paving will be \$32,900. For asphalt paving, \$41,534 will be expended. To Barber Asphalt Co. and Union Paving Co. was awarded greater part of asphalt work. The bulk of country road bituminous work went to Union Paving Co.; vitrified block work to Cunningham Paving Co. and Mack Paving Co.; resurfacing with waterbound macadam, Paul J. Snyder & Co.; country road surfacing, J. F. Shanley, D. Webster Anders and S. H. Dean, and grading, Peoples Bros., D. J. Lynch and Dwyer & Co.

**Pottsville, Pa.**—Contract for paving 8 blocks of W. Market St. and 2 blocks on Logan St. with grooved wooden blocks was given to M. A. Managan. Contract is itemized, there being 7 items with different prices named in each, making the total contract price \$49,132.11. Contractor must regrade and repave 10 blocks mentioned—Market St. from 4th to the western building line of 12th St. and Logan St. for the 2 blocks from E. Norwegian to E. Arch St., and construct new curbing and sidewalks, putting in new granolithic steel-bound curbing, relaying sidewalks and do all work of any description incidental thereto along Market St. and Logan St. within limits mentioned.

**Pottsville, Pa.**—City Council awarded to M. A. Managan, of Pottsville, contract for paving 10 squares. The contract price, including excavating, concrete bed, steel granolithic curbing, etc., is \$49,132.11.

**Spangler, Pa.**—Spangler Council awarded contract for grading, paving and curbing of Bigler Ave. from N. First St. to N. 4th St. and from N. 16th St. to N. 17th St. and N. 17th St. from Bigler to Crawford Ave. Contract was given to Polo Azzara, of Barnesboro, on a bid of \$8,164.54. Other bids were as follows: J. A. Lord, Hastings, \$8,376.88; Brua, \$8,908.42; John Dandrea & Co., \$9,373.40; C. F. Wilson & Co., \$11,899.60.

**San Antonio, Tex.**—Roach-Manigan Paving Co. was awarded contracts to pave three streets with 3½-in. creosoted pine blocks. Streets at unit prices, which follow: Ave. D, Travis to Houston, \$3.05 per sq. yd.; Main Ave., Commerce to San Pedro, \$2.56; Alamo Plaza, west side, Houston to Blum, \$3.12. Rushmore & Gowdy was awarded contract to pave West Houston St. from North Flores St. to Medina St., with 3½-in. creosoted pine blocks at the unit price of \$2.89 per sq. yd. Braden-Zander Construction Co. was awarded contract to construct cement sidewalks around LeSalle, Franklin and San Pedro Parks at unit price of \$0.1285 per sq. ft. Cost will approximate \$2,000.

## SEWERAGE

**San Francisco, Cal.**—The Board of Supervisors has authorized the expenditure of \$131,000 for the construction of the Baker's Beach outlet sewer, the Fulton avenue sewer, the Glenn Park extension sewer and the Fifth street outlet sewer. Frederick J. Churchill is Secy. Bd. of Pub. Wks.

**Stockton, Cal.**—Resolutions have been passed by Council calling for the laying of vitrified clay pipe sewer, varying from 4 to about 24 ins., and construction of necessary appurtenances.

**Bridgeport, Conn.**—Council has ordered the construction of sewers in several streets.

**Indianapolis, Ind.**—Resolution and plans for construction of main sewer in Central avenue, from 38th to 50th street, have been adopted by Board of Public Works. Estimated cost of sewer is approximately \$157,000.

**South Bend, Ind.**—Resolutions for pipe sewer on Kline and Calvert Sts., from Vistula Ave. to Vernon St.; for grade and

pavement on Johnson St., from Michigan St. to Vassar Ave.; for curb and walks on south side of Fox St., from Miami St. to east line of Demier's second addition, and for grading Donald St., from Michigan to Miami St., have been approved by Board of Works.

**Clinton, Ia.**—Resolutions were passed to construct sewer in one street.

**Council Bluffs, Ia.**—New sewer from Washington Ave. to Mynster St. is to be laid, and temporary repairs are to be made on N. Main St. bridge.

**Keota, Ia.**—Plans for a sewer system at Keota, Ia., have been prepared by the Iowa Engineering Co., Chas. P. Chase, Engr., Clinton, Ia.

**Harlock, Md.**—Citizens voted in favor of installing \$45,000 sewer system and water works. E. Elmwood Andrews, city engineer.

**Flint, Mich.**—It was resolved by Council to construct sanitary sewer on Summit St., from Richfield road, 268 ft. west, and for house connections on Avon St., from St. John St. to Boulevard, and on Crapo St., from Kearsley St. to 2d St.

**Saginaw, Mich.**—Council has ordered sewers in 8 streets, as follows: Congress, Bond to Oakley; Schemm, Bay to Brenner; Porter, Hancock to 130 ft. north-easterly; Granger, Hancock to 130 ft. northeasterly; Ward, Martha to McCoskry; Norman, Second to lot 9, block 134, Hoyt's northern addition; Lincoln, Cambridge to Randolph; Randolph, Lincoln to Julius.

**Duluth, Minn.**—Resolutions were passed for constructing sanitary sewers in several streets.

**Virginia, Minn.**—City Council decided to call for bids for a septic tank expected to cost about \$40,000, to be used in disposing of sewage.

**Carthage, Mo.**—Plans, specifications and estimates for general sewer in east part of town were ordered by City Council, to be prepared by City Engineer Newton.

**Camden, N. J.**—Ordinance was passed authorizing construction of sewers, culverts or drains in and along Sycamore St. from 9th St. to 10th St.; 26th St. from Federal St. to Mickle St.

**Roselle, N. J.**—Two ordinances were passed at meeting of Roselle Borough Council. One called for lateral sewer in 4th Ave.; second ordinance provided for curbing and guttering.

**Trenton, N. J.**—City will call for bids on construction of proposed sewage disposal plant as soon as necessary fill has been made. This plant, when constructed and equipped, will cost in the neighborhood of \$1,000,000.

**Verona, N. J.**—Clyde Potts, Consulting Engineer, 30 Church St., New York City, and Frank W. Crane, Borough Engineer of Verona, New Jersey, are preparing plans for sewerage and sewage disposal works for Verona. Estimated cost, \$130,000.

**Borough of Queens, N. Y.**—Second part of massive sewer system to drain Second Ward of Queens will be started within next six months after Board of Estimate adopts final plans and authorizes work on three sections of big Maspeth sewer, draining 3,232 acres, main trunks of which will cost \$363,000 to be paid for by property owners in an area representing an assessed valuation of \$13,055,255. Corona trunk sewer, largest in the world, now under construction, costing \$1,145,790 and draining 6,000 acres, will eventually be continued through Woodside and Winfield at a cost of another \$1,000,000, draining another 1,200 acres.

**Dunkirk, N. Y.**—Services of Hering & Gregory, engineers and sanitary experts, were engaged by Common Council at cost of \$1,500 to plan sewerage system.

**Suffern, N. Y.**—Plans being prepared for a sewage disposal plant and sewer system by Clyde Potts, 30 Church St., New York.

**Syracuse, N. Y.**—Chief Engineer Glenn D. Holmes, of Intercepting Sewer Board, has submitted plans and specifications for the new storm water sewer system for northeast section of city to Board of Contract and Supply. Estimated cost, \$100,000. Bids to be asked at once.

**Niles, O.**—Sewage disposal plant site ordered purchased by Council.

**Erie, Pa.**—Bonds were approved for sewers in several streets.

**Granplan, Pa.**—People are asking for sewers.

**Winnsboro, S. C.**—See Lighting and Power.

**Martinsburg, W. Va.**—Civil Engineer H. McKnight has submitted to Martinsburg officials complete data covering proposed sewerage system in city and proposition will shortly be submitted to the voters here. The plans call for system covering all the laid out sections of

city at cost of over \$300,000, excluding of private right of way and site for disposal plant.

**Cathlamet, Wash.**—Town Council considers installing a sewer system, and Street and Sewer Committee was instructed to advertise for bids.

**Racine, Wis.**—Council resolved that public sewers be constructed in 21st St. from Lake Michigan to West Blvd. in accordance with plans and specifications now on file in office of City Clerk.

**Vernon, B. C.**—City Council reported to have decided to proceed at once with improvement to local sewer system to cost between \$90,000 and \$100,000. New disposal plant will be constructed on Kalamalka Creek.

#### CONTRACTS AWARDED.

**Gadsden, Ala.**—To J. F. Morgan & Co., city, at \$14,367, for construction of 8 miles of sanitary sewers in West Gadsden, by Council.

**Long Beach, Cal.**—To Arthur S. Bent Const. Co., 520 Central Bldg., Los Angeles, at \$277,193, for installation of proposed sewer system.

**Stockton, Cal.**—To Bishop & Tumulty, for constructing vitrified clay pipe sewer.

**East St. Louis, Ill.**—Board of Local Improvements of East St. Louis, Ill., awarded contract for construction of improvement of Summit Ave. from westerly line of first alley west of 15th St. to westerly line of 16th St. to Louis Rich on his proposal as follows: 18-in. first-class sewer pipe, in place, per lin. ft., \$1.30; 15-in. first-class sewer pipe, in place, per lin. ft., 80 cts.; 10-in. first-class sewer pipe, in place, per lin. ft., 50 cts.; 6-in. first-class sewer pipe, in place, per lin. ft., 35 cts.; granitoid curbing set, per lin. ft., 36 cts.; granitoid curb and gutter set, per lin. ft., 54 cts.; concrete marginal curb set, per lin. ft., 15 cts.; oak marginal curb set, per lin. ft., 12 cts.; surface excavation to be placed in fill, per cu. yd., 27 cts.; surface excavation to be removed, per cu. yd., 12 cts.; brick in manholes and catchbasins, per cu. yd. laid, \$10; concrete catchbasin caps, with iron covers, in place, each, \$12; concrete in gutter inlets and catchbasins, per cu. yd., \$8; cast-iron manhole caps with iron covers (heavy), set, for each, \$15; asphalt expansion joints, 1-in. wide, per lin. ft., 6 cts.; asphalt expansion joints, 1½-in. wide, per lin. ft., 4 cts.; vitrified brick paving, per sq. yd., Alton brick, \$1.90.

**Normal, Ill.**—Contract for Normal avenue, Clay and School street sewer was let to P. F. McDonald at figures of \$2,107.73. Others bidding on the work were: Bruno Warlitz, \$2,179.20; D. H. Rider, \$2,214, and Frank Sullivan, \$2,321.41. Contract for the water main on the same streets was also let to Mr. McDonald for \$1,891.12. Other bids on this improvement were: Frank Sullivan, \$1,897.19; D. H. Rider, \$1,976.69, and R. R. McGregor, \$2,087.10.

**Kokomo, Ind.**—Board opened bids on Myrtle St. walks and Tate District sewer. Kokomo Construction Co.'s bid of 15 cts. a ft. was low. Lincoln Record bid 15½ cts. Bids on Tate sewer were as follows: Tom Joyce, \$2,435; O. B. Peters, \$2,444; H. Stewart, \$2,303.84; J. H. Waason, \$2,464.

**Lafayette, Ind.**—Bruce Moore was given the contract for construction of a sewer on North Main St. and improvement of Hayes St. with cement sidewalk.

**Baltimore, Md.**—Carrozza Brothers received Sanitary Contract No. 137 for Sewerage Commission at their bid of \$174,408.85.

**Deerwood, Minn.**—Contract for constructing sanitary sewer system has been awarded to Pastoret Construction Co., Duluth, Minn., at \$7,580. Other bids were: Magnus Johnson, Minneapolis, Minn., \$9,100; Ilstrup & Olson, Minneapolis, Minn., \$8,720; Lawrence-McCann Co., Eveleth, Minn., \$8,462; Tanner Bros., St. Paul, Minn., \$8,750; Greene Contracting Co., Albert Lea, \$8,850; F. A. Glass, Brainerd, Minn., \$12,935.

**Duluth, Minn.**—Norquist & Berg were low bidders on sanitary sewer to be laid in Tacony street, between 59th alley and 61st alley west. Their price was \$1,685.30.

**Sleepy Eye, Minn.**—To Wm. B. Bosworth, Ada, Minn., at \$33,905, for installation of sanitary sewer system and disposal plant.

**Bridgeton, N. J.**—Bids were opened for building of North Pearl St. sewer, two bids being received as follows: Thermo Vacuum Heating Co., Philadelphia, \$2,300, and A. H. Lupton, Bridgeton, \$1,802.51. Mr. Lupton being lowest bidder, contract was awarded to him.

**Newark, N. J.**—To Bruno & Pettitt, of Belleville, at \$172,180, for Section 14 of the intercepting sewer, and Chas. A. Haskins, Charlestown, Mass., at \$55,420, low bidder on Section 27 of the Kearny, Harrison and Newark intercepting sewer, for Passaic Valley Sewerage Commission.

**Plainfield, N. J.**—First contract for sewerage system has been awarded George Fuller Company for engineering work of sewer system.

**Rutherford, N. J.**—Springfield and Union avenues sewer and storm water drain contract was awarded to the Sizzo Construction Company. Price is \$3,061.55 and bond was fixed at \$2,000. The contractor will be compelled to insure his men against injuries.

**Rochester, N. Y.**—New sewer in Field street and Thurston road will be laid by John Petrossi for \$17,491; as well as those in Chili avenue for \$3,907.50, and in Genesee Park boulevard and Brooks avenue for \$4,263.75.

**Schenectady, N. Y.**—Eight bids were received for laying sanitary sewers in River road and Wyllie St. Contract was awarded to W. D. Goodale, at \$2,347.50. Other bids were: Kellam & Shaffer, \$3,210.30; P. Camillo Co., \$2,692.30; Thos. F. McGregor, \$4,152; John Allen, \$2,875.80; Kalteaux & Denello, \$3,320.50; Kehoe & Bissett, \$4,098.70.

**York, Pa.**—General Supply & Const. Co., of this city, is lowest bidder for construction of the outfall sanitary sewer with brick, their price being \$86,305.20. Whether sewer will be of concrete, brick or segmental block will be decided by Council. The totals are as follows: The Whitney-Turner Const. Co., Baltimore, for concrete pipe, tile lined, \$111,226.16; concrete pipe, \$98,717.28; brick, \$122,049.44; segmental brick, \$109,895.62. William McCarthy, Baltimore, concrete pipe, tile lined, \$110,508.10; concrete pipe, \$99,908.70; brick, \$104,741.30; segmental block, \$107,590.30; lock joint Natico block, \$102,217.70. Bruno Pizzimenti, Seneca Falls, N. Y., concrete pipe, tile lined, \$100,168.20; concrete pipe, \$88,875.60; brick, \$106,595.42; segmental block, \$102,261.20. Cantrell Const. Co., Philadelphia, concrete pipe, tile lined, \$101,643; concrete pipe, \$87,777.12; brick, \$95,263.93; segmental block, \$87,443.08. Ryan & Reilly, Baltimore, concrete pipe, tile lined, \$105,797.80; concrete pipe, \$92,348.24; brick, \$115,458; segmental block, \$101,121.80. R. H. Williams Co., Baltimore, concrete pipe, tile lined, \$131,458.72; concrete pipe, \$121,751.32; brick, \$152,156.74; segmental block, \$132,655. James Ferry & Son, Baltimore, concrete pipe, tile lined, \$95,208.70; concrete pipe, \$84,216.40; brick, \$91,116.70; segmental block, \$84,845.10; Natico block, \$81,884.50. General Supply & Const. Co., York, concrete pipe, tile lined, \$99,824.30; concrete pipe, \$89,224.90; brick, \$86,305.20. Jones & McRoberts Co., Pittsburgh, conc. pipe, tile lined, \$84,814.30; concrete pipe, \$75,277.60; brick, \$95,876.22; segmental block, \$75,277.66. H. C. Brooks Co., Carlisle, Pa., concrete pipe, tile lined, \$108,331; concrete pipe, \$97,275; brick, \$106,786.60; segmental block, \$97,404.20; Natico block, \$97,404.20. S. W. Childs, South Bethlehem, Pa., concrete pipe, tile lined, \$101,250; concrete pipe, \$90,001.10; brick, \$92,508.80; segmental block, \$95,939.70. G. W. Ensign, Harrisburg, Pa., concrete pipe, tile lined, \$118,338.45; concrete pipe, \$105,400.15; brick, \$105,423.85; segmental block, \$108,703.85.

**York, Pa.**—In competition with number of outside bidders the General Supply & Construction Co., of York, won from Council contract to build an outfall line and syphon over Codorus Creek in completion of city's sanitary sewage system, at its bid of \$86,305 for brick laid in concrete.

**Fayetteville, Tenn.**—Work on complete sewerage system to be installed in Fayetteville has been begun. Contract was let to an Atlanta firm for \$60,000.

**Seattle, Wash.**—Following bids were received by City Council for constructing 46th street sewer: L. Coluccio, \$15,866; C. Cristfero, \$14,519; H. Young, \$14,694; John Alemand, \$14,695; A. N. Florito, \$14,193; G. W. Walker, \$16,258; V. Ramaglia, \$12,491; Sylliasen & Sando, \$12,435.

#### WATER SUPPLY

**Wilmington, Del.**—City Council adopted resolution offered by Councilman Wood appropriating \$2,500 for experimental deep well, as well as consideration of number of other minor and routine matters.

**Fort Meade, Fla.**—An election will be held Aug. 21, at which proposition to issue bonds for \$7,500 for extension of water system will be submitted to voters.



**Ashton, Ill.**—Plans being prepared by Jas. H. Thompson, Chicago, for constructing water works. Election to be held in fall. Ralph J. Dean, Village Clerk.

**Galesburg, Ill.**—Councilmen unanimously agreed to submit proposition to bond city for \$100,000 for extension of water mains, construction of a new reservoir, digging of a new well and purchase of such machinery as necessary to procure more efficient water supply for city.

**Galesburg, Ill.**—Ordinance to bond city for \$100,000 for purpose of sinking one or more artesian wells, extension of water mains and purchase of necessary machinery to insure more water for fire protection and domestic use passed City Council.

**Laporte, Ind.**—Plans and specifications for new well, which is to be put down at the Kankakee pumping station to increase the city's water supply, have been prepared by city engineer and have virtually been approved by Board of Public Works. Specifications as now prepared call for well with internal diameter of 60 ft. and approximate depth of 25 ft. Walls are to be 24 ins. thick and of brick set in cement mortar, or are to be of concrete.

**La Porte, Ind.**—City engineer submitted estimate of cost of new well at Kankakee pumping station. Maximum cost is estimated as \$10,000 for well 60 ft. in diameter and 25 ft. deep, and \$13,500 for well 60 ft. in diameter and 35 ft. deep. Resolution was passed calling for building of well and notice to bidders prepared.

**Grand Mounds, Ia.**—Plans for the reconstruction and extension of the water works at Grand Mound, Ia., have been prepared by Chas. P. Chase, consulting engineer, Clinton, Ia.

**Wheatland, Ia.**—Plans for the reconstruction and extension of the water works of Wheatland, Ia., have been prepared by Chas. P. Chase, consulting engineer, Clinton, Ia.

**Hancock, Md.**—Hancock will have municipal water works. By majority of 53 votes citizens of that town decided to have bond issue of \$30,000 for erection of water works.

**St. Paul, Minn.**—Construction of addition to pumping station at McCarron's Lake has been recommended to Water Board. Estimated cost is \$100,000.

**St. Joseph, Mo.**—Mayor Marshall is inspecting water plants with view to have a modern plant installed in St. Joseph.

**Harlowton, Mont.**—\$15,000 water bonds were passed, thus assuring Harlowton permanent water supply of sufficient force to be of fire protection.

**Kenilworth, N. J.**—Budget for ensuing year includes \$600 for roads, \$1,000 for lighting and \$600 for water supply and hydrants.

**Rochester, N. Y.**—Committee on Water Works and Sewers reported there had been made an estimate on laying of 16-in. water main from Knight St. over Winter St. through the conflagration district to Champlin mill. It would require 7,375 ft. of pipe, and the approximate cost would be \$7,257.50. Moved that plans and estimates prepared by Supt. Fred W. Crocker be placed on file.

**Maumee, Ohio.**—Bonds for \$56,000 were recently voted, proceeds of which will be used for construction of municipal water system.

**Zanesville, O.**—Chester & Fleming, Pittsburgh, Pa., reported engaged to prepare plans for filter; estimated cost, exclusive of power house, \$125,000, and with power house cost about \$200,000.

**Guthrie, Okla.**—See Lighting and Power.

**Lafayette, Ore.**—After a long wait, the people of this place are seeing a beginning on the new water system, the project having gone far enough to start actual work. A carload of pipe has been distributed, and Contractor G. T. Morgan is on the ground, ready to begin work on the trenches. Engineer Jones, of McMinnville, has completed the plans and specifications for the tower and tank, and their erection has been sublet to a Portland firm.

**Coatesville, Pa.**—This town is experiencing delay in construction of new water system. There had been twenty inquiries about the \$150,000 bonds, but owing to war scare representatives from bonding houses declared that they would not bid at this time.

**Erie, Pa.**—Extension to water mains in various outlying streets of city were discussed by the water commissioners. It was decided to lay mains in 29th St., from State St. to a point between French

and Holland Sts., and in Chestnut St. from 30th to Peach Sts.

**Kittanning, Pa.**—Borough Council passed ordinance calling for election to authorize issue of \$112,000 bonds for construction of municipal water works.

**Winnabow, S. C.**—See Lighting and Power.

**Aberdeen, S. D.**—Owing to persistent waste of water by consumers, City Commissioners are considering advisability of installing water meters.

**Salt Lake City, Utah.**—Installation of twelve pressure gauge stations in connection with water system of Salt Lake is improvement that Supt. C. F. Barrett is planning to make. He decided to ask commission to make necessary appropriation first of year for improvement.

**Sheboygan, Wis.**—Resolution was recently passed asking for meters for all consumers.

#### CONTRACTS AWARDED.

**San Diego, Cal.**—Following submitted bids to Water Department on furnishing direct-connected, six-stage centrifugal pump for Mission Valley wells: Standard Iron Works, the Howell Const. Co., the Southern Electrical Co., Lawrence C. Fay and R. H. Baker.

**Normal, Ill.**—Contract for Cedar Crest water main was let to D. H. Rider at figure of \$1,156. Other bids were: P. H. McDonald, \$1,164.46; Frank Sullivan, \$1,314.97, and R. R. McGregor, \$1,276.20. See Sewerage.

**Louisville, Ky.**—Bids were opened for erection of 42 fire hydrants in various sections of suburban residential districts. Edward S. Larson presented lowest bid for fire hydrants and was given the contract. Average cost of hydrants will be \$118.50.

**North Adams, Mass.**—City awarded following contracts in connection with proposed extension of water system: Middlesex Contracting Co., Putnam, Conn., \$87,750, construction of Beaman basin; R. L. Whipple & Co., \$7,115, constructing concrete reservoir; Arthur H. Bailey, \$3,600, constructing pumping station; Chapman Valve Co., \$5,599, furnishing hydrants, gates and gate boxes; Light, Heat & Power Corp., \$17,538, laying pipe, and Donaldson Iron Co., \$32,718, furnishing cast-iron pipe.

**North Adams, Mass.**—Bids opened by Commissioner Public Works for constructing earth dam, reservoir and concrete conduit with appurtenances from plans of Wm. S. Johnson, Consulting Engineer, 101 Tremont St., Boston: (a) Middlesex Contr. Co., Putnam, Conn., \$87,750; (b) Framingham Contr. Co., South Framingham, \$88,406; (c) Hanscom Contr. Co., Boston, \$103,717; (d) W. T. Ryan Contr. Co., Hartford, Conn., \$123,600; T. Stuart & Sons Co., Newton, \$125,637; Davis & Brock, Brookline, \$129,187; Mason, Hilton & Co., New York, \$129,375; D. O'Connell Sons, Holyoke, \$131,525; H. P. Converse & Co., Boston, \$132,436; Light, Heat & Power Corp., Boston, \$149,207; P. J. Kennedy & Co., Holyoke, \$159,675. Unit prices of 4 lowest bidders, a, b, c, d: 5,000 cu. yds. earth excav., (a) .80, (b) \$1.08, (c) .65, (d) \$1.10; 70,000 cu. yds. earth fill, (a) .35, (b) .30, (c) .43, (d) .59; 2,900 cu. yds. concrete masonry (in dam), (a) \$4.75, (b) \$6, (c) \$6.25, (d) \$6; 900 cu. yds. concrete masonry (in conduit), (a) \$11, (b) \$8, (c) \$8.75, (d) \$10; 4,000 sq. yds. slope paving, (a) \$1, (b) \$1.15, (c) \$1.42, (d) \$1.50; 1,000 cu. yds. paving spillway, (a) \$2.05, (b) \$6, (c) \$4, (d) \$4; 2,500 cu. yds. rip rap, (a) \$1.50, (b) \$1.75, (c) \$3, (d) \$1.75; 65,000 cu. yds. stripping, (a) .33, (b) .28, (c) .35, (d) .48; lay 24-in. cast-iron pipe, 250 ft., (a) \$2.50, (b) \$1.75, (c) \$1, (d) \$2.50; 47,500 lbs. steel reinforcing, (a) .06, (b) .03½, (c) .02½, (d) .04; gate house (lump sum), (a) \$600, (b) \$1,500, (c) \$2,500, (d) \$2,000; appurtenances (lump sum), (a) \$250, (b) \$750, (c) \$500, (d) \$300.

**Duluth, Minn.**—To Simon Johnson, at \$1,168, for laying of a 6-in. water and 4-in. gas main in Tioga St., 47th to 43d Ave.; pipe furnished by city. To Gust. Hiner, at \$3,550, for laying of 6-in. water and 4-in. gas mains in Park Drive, by Water and Light Department; pipe furnished by city.

**Schenectady, N. Y.**—Out of 15 bids for furnishing material, labor and for constructing 20,000,000-gal. water reservoir on Bevis Hill, Niskayuna, received, successful contractor was New Jersey firm of Sutton & Carson, located at Ocean City, whose bid was \$222,873.85, a difference of \$134,003.65 from the highest bid, that of Charles Ippolito, which was \$356,877.50. Other bids varied between these limits as follows: Eon Engineering & Const. Co., of Long Island City, \$257,-

030; State Highway Const. Co., of New York City, \$240,304; Sheer & Wilson Corporation, Schenectady, \$247,809.50; Walsh Const. Co., Davenport, Ia., \$293,679; John J. Hart, Peekskill, \$246,522.50; United States Realty & Improvement Co., of New York, \$300,330; Mason-Hilton Co. & Merrill Ruckgamer, \$287,655; Buffalo Dredging Co., Buffalo, \$293,684; Brown & Lowe Co., this city, \$248,319; John W. Heller, Newark, N. J., \$292,590; Sewage Disposal & Water Plant Co., Schenectady, \$251,744; J. F. Cogan Co., of New York City, \$273,185, and the Warzangi-Vaughat Co., New York City, \$248,200.

**Schenectady, N. Y.**—Contract for furnishing of material and labor for constructing 20,000,000 gallon, covered reservoir on Bevis Hill, Niskayuna, near easterly boundary of the city, is to be let. This contract calls for engineer's office gate house, 3,200 ft. of fence, 72,500 cu. yds. of excavation, 15,000 cu. yds. of rolled embankment, 12,000 cu. yds. of plain concrete, 5,500 cu. yds. of reinforced concrete, 1,500,000 lbs. of steel reinforcement, 7,600 ft. of 4-in. drain tile in place, 1,400 ft. of 8-in. vitrified tile in place, 15,100 yds. of waterproofing, class A, and 15,100 sq. yds. of waterproofing, class B, 500 ft. of paving gutter and manholes.

**Lancaster, Pa.**—Contract for furnishing of pipe was awarded to Lancaster Lime and Supply Company, whose bids were 10 45-100 cents for 8-in., 15 2-10 cents for 10-in., 41 8-10 cents for 8-in. Y's and 60 8-10 cents for 10-in. Y's. Other local bidders were Steinman Hardware Company, Herr & Company and Reilly Bros. & Raub.

**Miller, S. D.**—Council has let contract for drilling well.

**Wills Point, Tex.**—City Council let contract for construction of dam for reservoir which is to supply city of Wills Point with water for new water-works system to W. R. Palmer, of Wichita Falls. The reservoir, when filled with water, will cover about 75 acres of land.

#### LIGHTING AND POWER

**Tempe, Ariz.**—City Council has engaged L. G. Knipe, Phoenix, Ariz., to prepare plans for construction of municipal lighting and power plant.

**Pasadena, Cal.**—People of Pasadena are urging a uniform lighting system for that town.

**Pomona, Cal.**—Mayor Vandegrift believes Pomona will soon install a good ornamental street lighting system.

**San Francisco, Cal.**—Announcement was made at Treasury that new bids have been asked for lighting fixtures for the San Francisco Custom-house.

**Lafayette, Ind.**—Board of County Commissioners decided on form of lighting system for improved Main St. levee. Thirty Boulevard lights will be placed on levee at intervals of 100 ft.

**Richmond, Ind.**—Ordinance was passed by Council appropriating \$16,000 out of funds of municipal light plant for construction of new street lighting system.

**Rising Sun, Md.**—Voters of Rising Sun at a special election, authorized Town Council to issue bonds to build municipal electric plant and water works.

**Haverhill, Mass.**—Haverhill El. Co. is contemplating placing all its wires on Essex and Wingate Sts. in underground conduits.

**Saginaw, Mich.**—Petitions are being prepared and movement is afoot to present to Council plan for municipally owned electric light and power plant which would cost about \$2,500.

**Eveleth, Minn.**—City Council has fixed Aug. 25 as date for special election to vote on issuing bonds for \$130,000 to purchase property of Home Electric & Heating Co.

**Perth Amboy, N. J.**—Question as to whether Perth Amboy shall have a municipal electric plant or continue to purchase electric current from Public Service concern, will be referred to voters at next general election. City Surveyor S. J. Mason estimated from review of existing plants, that it would cost approximately \$125,000 to erect plant and distributing system in city.

**Bordentown, N. J.**—Installation of a municipal electric light plant under consideration by Citizens' League and City Comm.; cost estimated at \$40,000.

**Passaic, N. J.**—Township committee has been requested to get in touch with Board of Freeholders and request them to place several street lights in Van Houten and Clinton avenues. Clerk was instructed to attend to this at once.

**Westfield, N. Y.**—At recent special election proposal to issue \$7,100 for repairs and improvements to the municipal electric-light plant was carried.

**Youngstown, O.**—Plans for complete readjustment of street lighting system have been decided upon which provide for replacing the 750 arc lamps now in use with 3,750 tungsten lamps, the figures being based on lamps of 100 c.p. H. Whitford Jones, of Cleveland, is consulting engineer.

**Guthrie, Okla.**—City Commissioners called election for Aug. 11 to vote upon question of city buying electric light and power plant, worth probably a quarter million dollars, and issuing bonds to pay for same; also to vote on an issuance of \$25,000 in bonds to improve the present water system.

**Lebanon, Pa.**—Ordinance was passed providing for incandescent lamps on a number of streets.

**Winnsboro, S. C.**—Citizens of Winnsboro declared themselves in favor of water works and sewerage, vote on the question of issuing bonds for \$100,000 for this purpose and for enlargement and improvement of electric light plant being carried by a vote of almost two to one.

**Hogota, Tex.**—Stock company is being formed here for purpose of putting in an electric light plant. Roy Riggs, of Brownwood is promoting the company.

**Superior, Wis.**—Eighteen new lights of 2,500 lumen units power are to be installed at a cost of \$38 each per year.

**Seattle, Wash.**—See Streets and Roads.

**Swift Current, Sask.**—Bonds to the amount of \$196,000 have been issued by town for local improvements, of which \$60,000 will be used for a municipal electric light plant.

#### CONTRACTS AWARDED.

**Denison, Ia.**—Contracts awarded by City Council to furnish and erect municipal light plant, to McGraw Electric Co., Omaha, Neb., at \$22,974, and for power house, to Fee & Cobler.

**Denison, Ia.**—Contract awarded to McGraw Electrical Co., of Omaha, for furnishing and erecting new municipal light plant at \$22,974; contract for power house awarded to Fee & Cobler, contractors.

**Albany, Minn.**—Contract awarded to John A. Mertz, Albany, Minn., for power house at \$2,986; Thos. Tamaset, Village Clerk.

**Buhl, Minn.**—Contract for about \$50,000 for improvements on water and light system was let to R. B. Whitaker & Co., of St. Paul, by Village Council. Work includes general improvements such as new tank, installation of new machinery and building of concrete smokestack.

**Mansfield, O.**—Bids for street and commercial lighting for city were opened recently and will be tabulated by Consulting Engineer H. Whitford Jones. Three companies bidding are Mansfield Railway, Light & Power Co., Mansfield Electric Light & Power Co. and Cleveland, Columbus & Southwestern.

**Springfield, O.**—Urbana Light Co. has entered into contract with F. A. Jordan & Co., of North Lewisburg, to furnish that village with electric lights. Company will furnish 24-hour service, beginning Oct. 1.

**Lebanon, Pa.**—Bids for lighting of certain city streets by gas were accepted by Council. Bids were submitted by Geo. S. Speaker, general manager of Lebanon Gas & Fuel Co., and place price of a 250-candlepower boulevard standard arc at \$48 per year and a 100-candlepower arc at \$30 per year.

**Seattle, Wash.**—Following contracts were awarded: California Ave., paving, F. McLellan, \$109,820.20; First Ave. S., concrete walks, A. J. Baumgartner, \$12,855.50; Electric lamps, Pacific Lamp & Supply Co., approximately \$80,000; 42d Ave. S. W. et al., sewers, Dahlstrom & Rodal, \$19,143; 20 police boxes, Dean Electric Co., \$73 each; Auburn Place, paving, Park Contract Co., \$3,278.17; oil pumps for steam electric plant, Dean Steam Pump Co., \$2,655.10.

#### FIRE EQUIPMENT

**Springdale, Conn.**—Firemen are holding carnival to secure money toward purchase of auto-chemical. Successful in collecting quite a bit of money.

**Pittsburg, Kan.**—Pittsburg will have no new fire station nor apparatus for present at least. Voters turned down proposals to issue \$15,000 bonds for the erection of a new central station to replace present worn-out equipment.

**Lynn, Mass.**—Peabody fire department has sent in order for new fire hose to length of 1,000 ft., two shutoff nozzles and extinguisher to replace those lost by department in Salem fire.

**Kittery, N. M.**—Kittery fire department is considering purchase of auto chemical and \$150 has already been raised for purpose.

**Spring Lake, N. J.**—More time will be required to determine type of engine for fire department. Special election will be called to determine on bond issue for the purpose involving \$10,000.

**Geneva, N. Y.**—Council ordered clerk to purchase 500 feet of fire hose from Quaker City Rubber Co. at a price of 56 cents per foot f. o. b. Geneva. Company did not submit lowest bid, but quality of product and low price were responsible for decision.

**Kennett Sq., Pa.**—Kennett Square Fire Company is considering purchase of automobile fire engine.

**Lebanon, Pa.**—Specifications for fire hose for fire companies of city submitted by Councilman G. T. Spang were accepted and bids will be advertised for. Appropriation of \$2,900 is standing for purchase of 2,900 ft. of hose. Specifications call for seamless cotton rubber-lined fire hose in 50-ft. lengths. The hose must stand 400 pounds pressure.

**Lebanon, Pa.**—By a unanimous vote members of Union Fire Company decided to buy motor driven combination wagon, chemical and hose apparatus combined.

**Knoxville, Tenn.**—Ninety-horse-power motor-driven combination chemical and hose wagon will be added to city fire department.

**Port Arthur, Tex.**—The citizens have voted in favor of issuing \$10,000 in bonds for the installation of a fire alarm system.

#### CONTRACTS AWARDED.

**Montgomery, Ala.**—American-LaFrance Co. was awarded the furnishing of motor-driven fire engine by fire commissioners.

**Augusta, Ga.**—Resolution offered by Councilman J. W. McDonald, authorizing clerk of Council to enter into contract with Seagrave people in accordance with bid and specifications and conditions furnished by City Council, for two 90 horse-power fire trucks, was adopted by majority vote of Council.

**Boston, Mass.**—City has awarded contracts for fire apparatus as follows: To Robinson Fire Apparatus Co., St. Louis, Mo., for one pumping engine, two tractors and one 65-ft. ladder truck, at \$23,750; to the Seagrave Co., Columbus, Ohio, for one aerial truck, at \$11,000; to American & British Mfg. Co., Providence, R. I., for tractor and deck gun, at \$5,600.

**Pittsfield, Mass.**—Contract for furnishing new combination chemical and hose truck for Stockbridge fire department has been awarded to Sisson Company. It will be Buick car. It will carry two 35-gallon chemical tanks of Badger type, hand extinguishers, two 24-foot extension ladders and 300 feet of chemical hose. In addition to this equipment 400 feet of regular hose and force of 10 men can be carried.

**Perth Amboy, N. J.**—By August 17th contract will be awarded for motor chemical and hose for which following bids were recently received: Ingle-Hunt Motors Co., Newark, Stewart 30 h.p. chassis, \$1,800, complete with body and fixtures, \$2,635; Perth Amboy Garage Co., Perth Amboy, White machine delivered in from 60 to 90 days, f. o. b. Perth Amboy, \$5,650; Hoagland-Thayer, Inc., Newark, Adams machine f. o. b. Finley, O., \$3,800; Nott fire engine from Woodhouse Manufacturing Co., New York, \$7,000; Frank Van Syckle Garage Co., Perth Amboy, No. 1 and No. 2 types of Seagrave products, \$5,900 and \$6,200, respectively; six-cylinder of James Boyd & Co., f. o. b. cars, \$6,500; six-cylinder Knox, \$7,500; four-cylinder, Boyd, \$5,850.

**Albany, N. Y.**—To Finch & Hahn, at \$3,200, for the extension of the underground fire alarm system by Board of Contract and Supply.

**Rochester, N. Y.**—There were 24 bids, submitted by seven big contracting firms and there was a range of \$75,000 difference between the high and low bids for bridge. High bid was that of P. J. Carlin, of New York, whose bid was \$276,749.60. The low bid was submitted by the Penn Bridge Co., of Beaver Falls, Pa., and it was \$207,022.60. The names of the competing firms were: P. J. Carlin, of New York City; Lupfer & Remick Co., Buffalo; McHarg-Barton Co., of New

York City; Penn Bridge Co., of Beaver Falls, Pa.; Strobell Steel Construction Co., of Chicago, Ill.; Seneca Engineering Co., of Montour Falls, N. Y.

**Altoona, Pa.**—Bids submitted by seven auto fire truck companies were opened and ranged from \$3,000 to \$7,000. On account of number of bids offered and differences in various machines, it was decided not to take immediate final action.

#### BRIDGES

**Los Angeles, Cal.**—The budget committee of Council has decided that a reinforced concrete bridge should be built at once across the Arroyo Seco at Ave. 43, also a concrete wall or riprap for the protection of the banks.

**Santa Ana, Cal.**—Los Angeles and Orange Counties will soon call for bids for building jointly reinforced concrete bridge across Coyote Creek, on Los Alamitos road, at line between two counties.

**Pensacola, Fla.**—Board of County Commissioners decided to construct all bridges and culverts on Pensacola to Flomaton hard road to concrete, replacing wooden ones now in use.

**Asheville, N. C.**—The Board of County Commissioners have made an appropriation and the Biltmore Estate and the Asheville Power & Light Co. will contribute the balance to construct a concrete bridge to replace the wooden structure across the French Broad River, to cost about \$12,000.

**Wichita, Kan.**—Incomplete returns from bond election indicate that Wichita citizens, by a small majority, voted to issue \$15,000 in city bonds to build a concrete bridge between Central and South Riverside Parks.

**Carthage, N. Y.**—Now that Carthage has brick pavement from state bridge to corner of State and Church Sts., it is proposed that pavement be extended from Church St. to North Washington St.

**Fremont, O.**—Plans being prepared by Wm. F. Schepflin, County Engineer, for steel and concrete bridge to replace Tindall Bridge.

**Massillon, O.**—City Council approved plans of W. P. Brown, principal assistant engineer of Wilbur J. Watson Co., bridge engineers, of Cleveland, for proposed new viaduct to extend west from South Erie St. to the Pigeon Run Rd. Council will pass an ordinance authorizing sale of bonds to amount of \$20,000 to take care of the city's share of expense of building structure.

**Johnstown, Pa.**—Proposals for \$40,000 bridge bond of 1913 will be received until 2 p. m.

**Woonsocket, R. I.**—City contemplates building reinforced concrete bridge.

**Toronto, Can.**—Comr. of Works for city of Toronto will receive tenders for bridge about 1,500 ft. long, including approaches, and 86 ft. wide. The height above lowest part of valley will be 124 ft. and bridge proper will consist of five arch spans, longest being 281 ft. Upper deck or lever is to carry double track for electric street railways laid in ballast, two 20-ft. roadways and two sidewalks. Provision is to be made for installing, on lower, level, two lines of railway to connect with future tube or subway system. Amount of steel required will be about 5,500 tons, and of concrete about 43,000 cu. yds. Estimated cost of bridge will be \$2,500,000.

#### CONTRACTS AWARDED.

**Greenwich, Conn.**—James Cumiskey has been awarded contract for concrete bridge to be constructed on Hill road. His figure was \$1,355. Other bidders were: Peter Mitchell, \$1,368.75; Anbeck, \$5,106.25; Gregory & Merritt, \$1,412.50; John Hansen, \$1,860; Joseph Christiano, \$1,662.50.

**Wilmington, Del.**—Six bids were received by Levy Court for erecting a reinforced concrete bridge across Duck Creek. It was decided to reject all but the three lowest bids, and these were referred to a committee of four. Bids were: Jones Construction Co., \$2,170; George R. Dolan, \$2,150; J. F. McIlvaine, \$1,475; Lutin Bridge Co., \$1,647; L. B. Jacobs, \$1,480, and W. T. Wells, \$2,350.

**Kokoro, Ind.**—To Burk Construction Co., New Castle, Pa., at \$10,000 for construction of concrete bridge for this city.

**Crystal Falls, Mich.**—To D. F. Boyle & Co., city, for construction of concrete bridge over Duck River at Watersmeet in Gogebic County by State Highway Department.